

A Comparison of the National and Worcestershire alien plant lists

Roger Maskew

A recent addition to the long-running Collin's New Naturalists series is *Alien Plants* (Stace & Crawley, 2015). This thoroughly informative and interesting book includes two very useful appendices. Appendix 1 is a list of Angiosperm (Flowering Plants) Neophytes and Neonatives and Appendix 2 a list of Angiosperm Archaeophytes recorded in the British Isles from January 1987 to May 2012.

The authors include only those species recorded since 1986; 1986/87 being one of the cut-off points in the recording schemes of the BSBI and conveniently the same year as the survey of the Worcestershire flora commenced. They decided not to include at least a further 2,000 species because they were either very rare casuals, or survivors (planted) only marginally 'in the wild'. The lists include such information as the number of hectads recorded, which species are considered to be invasive, at least in some places (57 neophytes/neonatives, 6 archaeophytes), and in the case of the neophytes the date of the first record.

There follows a comparison of the British totals with that of the alien and archaeophyte taxa included in *The Flora of Worcestershire* (Maskew, 2014 – hereinafter referred to as the *Flora*).

Using Stace & Crawley's definitions, 'An alien (termed 'Introduced' in the *Flora*) taxon is one that has migrated to the area with human involvement (whether intentional or unintentional), or has migrated there without human involvement, but from an area in which the taxon is/was also alien'. 'A neophyte is an alien plant that has arrived in an area in a wild state since 1500 CE.' These are divided into three subgroups:

Naturalised plants – 'those plants that are self-reproducing or increasing from year to year by sexual (seeds) or vegetative (rhizomes, tubers, bulbs, fragments, etc.) means'. I personally never record anything as naturalised unless I know it has been present at a site for at least five years, but the judgement of other botanists may vary considerably. In Worcestershire common examples include American Willowherb *Epilobium ciliatum*, Indian Balsam *Impatiens glandulifera*, Common Field-speedwell *Veronica persica*.

Casual plants (casuals) – 'those plants that are not self-producing from year to year and whose continued existence in the area relies on repeated introductions.' Termed '(C)' in the *Flora*: e.g. Common Millet *Panicum miliaceum*, Tomato *Solanum lycopersicum*, Dense-flowered Mullein *Verbascum densiflorum*.

Surviving plants (survivors) – 'individual plants that are persistent in the area from year to year simply due to longevity, but do not reproduce sexually or increase vegetatively. Most of these are woody species, especially trees, without means of vegetative propagation, and were originally deliberately planted.' Termed '(P)' 'planted' in the *Flora*: e.g. Russian-vine *Fallopia baldschuanica*, Garden Privet *Ligustrum ovalifolium*, Wilson's Honeysuckle *Lonicera nitida*.

The British list of neophytes totals 1,809 taxa. This is divided into 1,138 naturalised, 342 casual and 329 survivor taxa. It should be borne in mind that the status of a species can vary from one area to another and often a species will have a dual status within a single county, in which case, as in the *Flora*, the higher rank is normally given. For example, Columbine *Aquilegia vulgaris* is both alien and native in Worcestershire, yet its status is given as native. Therefore although the British status of some species is at variance with that considered to be the case in Worcestershire, using Stace & Crawley's criteria, as of 2014, 940 neophyte taxa are included in the *Flora* (52% of the British total) of which 614 (54%) are naturalised, 199 (58%) casual, and 127 (39%) surviving. Although this is the

total some two years later than the British list (May 2012) it is doubtful whether more than ten alien taxa would have been added to the Worcestershire list during this time.

A Neonative – 'a plant that has originated in the area without direct human involvement, but has arisen as the result of hybridisation either between a native and alien taxon or between two alien taxa, or as the result of evolution from an alien or neonative taxon.' The British list is given as 145 taxa (this includes species not recorded since 1986) many of which are very rare. Twenty-eight of these are in the *Flora*, which includes seven *Salix* and four *Epilobium* hybrids. The hybrid Bluebell *Hyacinthoides hispanica* x *non-scripta* = *H. x massartiana*, hybrid Campion *Silene dioica* x *latifolia* = *S. x hampeana* and the under-recorded, increasing and invasive Bohemian Knotweed *Fallopia japonica* x *sachalinensis* = *F. x bohémica* are three examples of better known Worcestershire neonatives; the first two each recorded in over 150 tetrads.

Archaeophyte – 'An archaeophyte is an alien plant that has been present in the area in a wild state since before 1500 CE.' In the *Flora* they are included under 'Introduced' and usually referred to as ancient introductions in the species accounts, with their local status given. As with the neophytes the authors recognise three subgroups:

Colonist – 'A weed of cultivated land, by road sides or about houses, and seldom found except in places where the ground has been adapted for its production and continuance by the operations of man' (Watson, 1847); Worcestershire examples include – Shepherd's Purse *Capsella bursa-pastoris*, Common Poppy *Papaver rhoeas*, Common Fumitory *Fumaria officinalis*.

Denizen – 'At present maintaining its habitats as if a native species, without the direct aid of man, but liable to some suspicion of having been originally introduced by human agency, whether by design or accident' (Watson, 1847); e.g. – Greater Burdock *Arctium lappa*, Hemlock *Conium maculatum*, Common Mallow *Malva sylvestris*.

Cultivated plants – 'plants introduced here by people as crops, or developed here as such from species that arrived here by chance with them or their crops, and then escaping or persisting.' (Stace & Crawley); e.g. – Horse-radish *Amoracia rusticana*, Wild Turnip *Brassica rapa* subsp. *campestris*, Opium Poppy *Papaver somniferum* subsp. *somniferum*.

The British list of archaeophytes totals 197 species. This is divided into 65 colonists, 87 denizens and 45 cultivated taxa. Twelve of Worcestershire's archaeophytes have not been recorded since 1986, which leaves a total of 174 (88% of the British total). Again using Stace & Crawley's criteria, 72 (83%) are denizens, 60 (92%) colonists and 42 (93%) cultivated.

In addition, it is worth mentioning that the number of microspecies in the three large apomictic genera *Rubus* subgenus *Rubus* (brambles), *Hieracium* (hawkweeds) and *Taraxacum* (dandelions), as recognised in the British flora is 334, 417 and 237 respectively. It is reckoned that the above totals include about 5, 54 and 111 aliens respectively. The authors do not include brambles and dandelions in appendix 1 as they all belong to sections containing British natives, but four species of hawkweed are included because they represent non-British sections. In Worcestershire 75 (22% of the British total) species of bramble had been recorded between 1987 and 2014 and of the five recognised British aliens only *Rubus armeniacus* cv. 'Himalayan Giant' has been found; 164 (69%) species of dandelions were recorded including 29 (26%) aliens. Northern Britain fares much better for hawkweeds, and although Worcestershire's hawkweeds have been expertly recorded, this is reflected in the rather low total of 35 (8%) taxa, of which 21 are considered to be of uncertain (native/alien) status in the county.

Stace & Crawley cover other groups of alien non-flowering plants separately. The two we are concerned with here are Pteridophytes (ferns and 'fern allies') and gymnosperms (conifers). All but one of the 13 pteridophytes listed were originally imported as horticultural

subjects and subsequently escaped into the wild. Four have been found in Worcestershire; Sensitive Fern *Onoclea sensibilis*, Water Fern *Azolla filiculoides* and Ribbon Fern *Pteris cretica* were recorded as naturalised, and Ostrich Fern *Matteuccia struthiopteris* as casual.

Of the 49 alien conifers listed 27 have been found in Worcestershire. Thirteen of these were recorded as naturalised; e.g. Scots Pine *Pinus sylvestris*, Douglas Fir *Pseudotsuga menziesii*, European Larch *Larix decidua*; 13 as surviving planted; e.g. Atlas Cedar *Cedrus atlantica*, Swamp Cypress *Taxodium distichum*, Japanese Red-cedar *Cryptomeria japonica* and one as casual, Bhutan Pine *Pinus wallichiana*.

When the Worcestershire flora survey commenced in 1987 overall there was very little enthusiasm for recording aliens. Gradually, undoubtedly encouraged by the publication of Stace (1991), a few recorders began to get to grips with them, especially Bill Thompson and Chris Westall in the more favourable urban districts of Birmingham and the Black Country. By the beginning of this century at least all the main towns had been investigated and even some of the smaller ones such as Broadway had produced good lists.

It is reckoned that there are approximately 3,859 hectads in Britain, a figure which excludes small fractions of maritime hectads. The British alien lists are based on this number of hectads. The *Flora* was based on 'Greater Worcestershire' an area that includes those parts of the vice-county (v.c.37) outside, and those parishes in neighbouring vice-counties inside the current administrative boundary. There are 596 tetrads in this area which includes a number of part tetrads around the margins. To the nearest this equates to 24 hectads, 0.6% of the British total and this fact should be borne in mind when comparing the totals of Worcestershire and British aliens. Furthermore, in 2004 the BSBI (*BSBI News*, no. 97), following the digitisation of the vice-counties (Landmark/RSMI), published a list in which the area of v.c 37 (approximately 96% of 'Greater Worcestershire') is given as 1,830.7 sq km, number 64 in size out of a total of 112 British vice-counties. Also included in the list is the number of vascular plant taxa recorded for each vice-county in which the Worcestershire total of 1,126 alien taxa is third highest, only bettered by W. Kent (1,148) and Surrey (1,227). Of course since 2004 more species have been added to the Worcestershire list, although for various reasons some of these would have been rejected and not included in the *Flora* total of 1,114 neophyte/archaeophyte taxa. Nevertheless, the two figures compare favourably and are a clear indication that with a total of well over a thousand species recorded how well the alien flora of Worcestershire had been covered up to this point in time.

Stace & Crawley (2015) also give an interesting account of the British top 52 aliens. How this compares with Worcestershire's top aliens is not for discussion here, but will be the subject of a further analysis.

References:

- Maskew, R. 2014 . *The Flora of Worcestershire*. Privately published.
- Stace, C. A. 1991 . *New Flora of the British Isles*. First edition. Cambridge University Press, Cambridge.
- Stace, C. A. & Crawley, M. J. 2015 . *Alien Plants*. Collins, London.
- Watson, H. C. 1847-59 . *Cybele Britannica: or British Plants and their Geographical Relations*. Longman & Co., London.