Conyza sumatrensis (Retz.) E. Walker established in England

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ABSTRACT

Conyza sumatrensis (Retz.) E. Walker has achieved a coherent distribution pattern through the Thames estuary to eastern London. The implications are examined, together with a résumé of its earlier colonization of France and the Channel Islands. The habitat requirements of *C. sumatrensis*, *C. bonariensis* (L.) Cronq. and *C. canadensis* (L.) Cronq. are compared, and a key is given for their identification.

DISCOVERY IN LONDON

On 26th September 1984, I first observed *Conyza sumatrensis* (Retz.) E. Walker on the English mainland, well established by the River Lea towpath from Old Ford to Bromley-by-Bow, in the London Borough of Newham. Previously, the British literature had reported this robust fleabane only from Guernsey (Jee 1962) as *C. bonariensis* (L.) Cronq., and from Jersey (McClintock 1975) and Sark (Ryan 1977) under the present name. In 1980, I noted its widespread occurrence in the first two of these islands, and, as it self-sowed annually in my garden since then, it was still possible to compare fresh Sarnian material with the new Lea-side plant. D. McClintock (pers. comm.) also confirmed that they belonged to the same species.

PRESENT DISTRIBUTION IN EASTERN AND CENTRAL LONDON

Between October 1984 and October 1986, I found *C. sumatrensis* occupying over 40 urban sites, sometimes abundantly, and often close to the River Thames and/or its associated waterways. My current records for each London borough are summarized as follows.

Newham, v.c. 21: from Old Ford (GR 51/378.832) to Bromley-by-Bow (GR 51/382.823), plentiful along c. 2 km of River Lea towpath, in ancient concrete fissures and wall crevices, with much *Chenopodium ambrosioides* and *Hirschfeldia incana*.

Tower Hamlets, v.c. 21: a) Carpenter's Road (GR 51/374.845). One large plant in factory forecourt. It had more deeply sinuately-cut lower leaves, rather *Coronopus*-like, and smaller, less pubescent capitula, appearing somewhat intermediate to *C. canadensis* (L.) Cronq., but too sturdy, stout and fertile for an F_1 hybrid. I have seen similar plants of Spanish origin in **BM**. b) Regent's Canal from Victoria Park (GR 51/348.835) south-eastwards to Limehouse (GR 51/364.812), scattered individuals on and below the towpath wall. c) Limehouse Basin (GR 51/364.811), abundant and very vigorous on quayside, mostly at foot of south-facing brick wall. d) from Ratcliff (GR 51/360.810) to Shadwell (GR 51/354.808), frequent by pavements and on concrete dump. e) Shadwell Basin (GR 51/352.807), frequent on stony waste ground. f) Wapping (GR 51/345.801), two plants on roadside. g) Wapping (GR 51/343.804), several plants on gravelly waste ground. h) Stepney (GR 51/353.817), pavement weed with *Sorghum halepense*.

Hackney, v.c. 21: a) Upper Clapton (GR 51/355.867), one casual plant on concrete path by Middlesex Wharf. b) Stamford Hill (GR 51/337.878), one casual plant on pavement by school wall. c) Stoke Newington (GR 51/332.870), stony waste ground behind Abney Park Cemetery, five large plants amid a mixed colony of *Atriplex prostrata* and *A. prostrata* × *longipes*. d) Shacklewell (GR 51/341.858), two plants on sheltered footpath. e) Graham Road (GR 51/

344.847), three plants as garden weeds in warm, sheltered hollow. f) London Fields (GR 51/345.845), pavement and shrubbery weed, several plants surprisingly mixed with *Rumex palustris* and *Atriplex littoralis*. g) Regent's Canal, from Victoria Park (GR 51/348.835), north-westwards to De Beauvoir Road (GR 51/328.838), small scattered colonies frequent along brick walls. h) Homerton (GR 51/355.845), widespread street weed.

Islington, v.c. 21: Regent's Canal, from De Beauvoir Road (GR 51/328.838), south-westwards to Danbury Street (GR 51/318.835), several small colonies on brick walls.

Haringey, v.c. 21: by Finsbury Park (GR 51/313.874), one plant atypically and casually on rough grassy verge of Parkland Walk, the most north-westerly of all European records to date.

Lambeth, v.c. 17: by Westminster Bridge, opposite County Hall (GR 51/306.796), two small plants at the foot of a concrete wall.

Southwark, v.c. 16: Peckham Rye Park (GR 51/345.754), one plant on a roadside.

Logically, one would now expect frequent occurrences close to the Thames in the Bermondsey, Rotherhithe, Deptford, Greenwich, Isle of Dogs, Poplar and Canning Town areas; further investigations are needed. It should also be more frequent in central London than the above records indicate, but it has not yet been found naturalized anywhere west of London.

OTHER THAMES-SIDE RECORDS

Palmer (1983) not only reported *C. bonariensis* (now redetermined as *C. sumatrensis*) from stony waste ground near Blackfriars, in the City of London, but also referred to a strong colony established at least since 1977 at Chalkwell, S. Essex, v.c. 18. The latter was first found in 1974 by R. M. Payne (Rand 1975), and E. J. Clement (pers. comm.) further states that R. M. Payne had identified two colonies at Westcliff-on-Sea. Additionally, R. B. Hastings (Burton 1985) detected a large stand of the species on Rainham Marsh in 1984, and G. D. Kitchener (pers. comm.) discovered a plant at Swanscombe, N. Kent, v.c. 16, in 1985.

True *C. bonariensis*, which is closely related, has, to the best of my knowledge, only occurred in Great Britain as an ephemeral shoddy alien.

FRENCH RECORDS

C. bonariensis, presumably sensu stricto, has long been known as an established alien in the south of France, either by the name *Erigeron crispus* Pourret (Bonnier & Layens 1909) or as *Conyza ambigua* DC. (Le Maout & Decaisne 1855). Rouy (1927) also noted its occurrence in Corsica. More significantly, De Langhe *et al.* (1973) mention "*Erigeron crispus* Pourret" as an adventive in Belgium, Luxembourg and northern France, but there is no description given and thus no way of ascertaining which *Conyza* species is intended; at such temperate latitudes, *C. bonariensis* s.s. would indeed be adventive, but one would, by that date, expect *C. sumatrensis* to have naturalized itself locally in the region. Fournier (1961) had already made a clear distinction between the two; the latter, as *Erigeron naudinii* (Bonnet) G. Bonnier, is described as very rarely naturalized in Var, Aude, Pyrénées Orientales, etc., and of unknown origin. An interesting footnote claims that "les vrais *Conyza* ont les styles plus longs que les corolles; ce qui n'est pas le cas ici."

Neither Mérat (1812) nor Cosson & Germain (1845) nor even Jeanpert (1977) mention any *Conyza* species other than *C. canadensis* occurring in the Parisian region. However, in October 1984, personal observations of *C. sumatrensis* growing plentifully on gravelly roadsides in the Aulnay-sous-Bois, Bondy and Blanc-Mesnil suburbs (about 15km north of Paris) revealed that its recent northward progress had extended on a broader west-to-east front than is indicated in Jovet & Vilmorin (1975). This suggests that De Langhe *et al.* (1973) may either have overlooked or misnamed it in the countries listed above. It also supports the hypothesis that our present Thames estuarine and metropolitan populations arose from wind-blown seed originating in north-eastern France rather than the Channel Islands. Clearly, further records from northern Europe generally would now be very helpful in placing our London colonies into a wider context.

It is also relevant to recall that the decade 1974–1984 enjoyed exceptionally frequent hot summers, with prolonged spells of dry, south-easterly winds. These conditions favoured not only the establishment of *C. sumatrensis* here, but also encouraged other highly drought-resistant Continental species such as *Picris hieracioides* and *Hirschfeldia incana* to extend their British range and abundance quite dramatically. Nowadays, they often grow together in London, an association unheard of ten years ago.

AUTECOLOGIES OF THE THREE *CONYZA* SPECIES

From my own research carried out near Los Angeles, California, in June 1984, it became apparent that naturalized *C. bonariensis* would seek the extra warmth of narrow pavement cracks and tight wall crevices, even given a climate more tropical than that prevailing in the Mediterranean. *C. sumatrensis*, also a marked thermophile, again favours arid, sun-baked niches, but to a lesser degree, and this has enabled it to spread as far northwards as London. *C. canadensis*, the least demanding of the trio, profusely colonizes cold, bare, loose soil and gravel in rural and urban areas alike, but still remains adaptable enough to produce stunted, rather woody (sometimes biennial?) plants in the same stone and concrete heat-traps which are actually sought by the other two. As a result, I have found it almost always accompanying *C. sumatrensis*, both in London and in Paris, the relative vigour of each species doubtlessly influenced by the relative heat-retentiveness of each substrate.

A marked degree of moisture intolerance in *C. canadensis* is implied by the *Atlas* (Perring & Walters 1962) whose numerous distribution dots cluster most closely in the driest south-eastern and East Anglian regions; the species is not recorded from Scotland or Ireland at all. For a similar reason, London may now represent the north-western limit of the Eurasian distribution of *C. sumatrensis*, its recent extension of range aided by a number of particularly rainless, warm, continental summers. Having arrived, it may slowly retreat again, faced with the return of a normal Atlantic climate. Or it may evolve morphologically indistinguishable variants more tolerant of dampness, so as to hold its own or even move a little further northward and westward. After all, *Conyza* species do vary considerably in response to environmental conditions, and *C. sumatrensis* is sometimes seen to produce casual examples in unusual habitats such as shady gardens, exposed spoil heaps, and windswept grassy banks. This tendency is more noticeable towards the outer edge of its present urban distribution, and therein could lie evolutionary potential.

Be that as it may, *C. sumatrensis* has, so far, shown no capacity for using British Rail's rolling stock as a seed distribution vector. Unlike *C. canadensis*, *Senecio squalidus* and *Epilobium ciliatum*, which have exploited this facility to a spectacular degree in southern England, it still finds loose trackside ballast uncolonizable; the limited ability of that medium to hold heat at night could well explain why. Bearing in mind also the small likelihood of favourable long-term habitats existing in cooler, damper, country areas, I would, at the present time, anticipate only a remote chance that this tall subtropical species might permanently invade a major part of the United Kingdom.

KEY TO *CONYZA* SPECIES IN ENGLAND

1. Inflorescence ± columnar. Mature capitula 3–5 mm broad, ± bell-shaped. Involucral bracts yellowish-green, glabrous or subglabrous. Tubular florets short, yellow, four-lobed. Leaf-blades relatively thin, their borders sparsely but usually conspicuously hispid-ciliate throughout ..... *C. canadensis*

1. Inflorescence ± pyramidal. Mature capitula 5–10 mm broad, ± straight-sided. Involucral bracts pale grey-green, shortly and evenly pubescent. Tubular florets longer, yellow below, whitish above, five-lobed. Leaf-blades relatively thick, their borders densely appressed-pubescent, sometimes with a few soft longer cilia towards the base only 2

2. Plant often robust (10–) 30–200 cm. Inflorescence finely grey-pubescent throughout, not glandular, widely and profusely branched, the lateral branches not overtopping the main axis. Mature capitula 5–7 mm broad, pappus pale grey. Shortly ligulate florets present. Widely naturalized in London, preferring hot, stony substrates ..... *C. sumatrensis*

2. Plant seldom exceeding 60 cm. Inflorescence glandular, sticky, often becoming purplish, the branches less numerous, with laterals often overtopping the main axis. Mature capitula 6–10 mm broad, pappus dull grey-brown. True ligulate florets absent. Naturalized in the Mediterranean region, occurring in England only as a temporary shoddy alien ..... *C. bonariensis*

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