

***Galeopsis segetum* Neck. (Lamiaceae), Downy Hemp-nettle: native or introduced in Britain?**

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ABSTRACT

Galeopsis segetum is an extinct species in Britain whose distribution status is unclear. Ten criteria have been used to assess whether it is likely to be native or introduced using data compiled from the literature, herbaria and other sources. The unique geographical distribution and its general morphological uniformity in Britain fit within its European context and provide strong support for a native status. Evidence against a native status is given mainly by its occurrence as an arable weed (not a natural habitat) and its occasional naturalisation elsewhere. Evidence from other criteria are more equivocal. On balance, we place greater emphasis on the geographical and morphological evidence, and accept it as native in Britain in north Wales and eastern England. There is insufficient information to be certain of its status in a number of other areas.

KEYWORDS: Distribution, ecology, extinct species.

INTRODUCTION

Galeopsis segetum Neck. (*G. ochroleuca* Lam., *G. dubia* Leers, *G. villosa* Huds.), Downy Hemp-nettle, is currently listed as one of 20 extinct native British plants (Wigginton 1999). It was first recorded by Ray (1670) from three sites in Yorkshire, and was last seen in Caernarvonshire in 1975 on the edge of an arable field.

Opinions on the status of *Galeopsis segetum* as a native or introduced species have varied. Many authors have accepted it as native, e.g. Bentham & Hooker (1858) and Clapham *et al.* (1952). Some authors have suggested it is introduced, e.g. Watson (1849) and Dunn (1905), while other authors are equivocal, e.g. Druce (1932) and Rich (2001). The status is important as we are considering a re-introduction program for the species in Britain.

In this paper we use the eight criteria of Webb (1985) and one of Preston (1986) to analyse whether *G. segetum* is likely to be native or introduced in Britain. In addition we introduce a tenth criterion which may help decide if plants are native or introduced: usage by man. Many different plants have been used over thousands of years for food, clothing, medicine, building, raw materials etc., and those that are useful are more likely to have been introduced to areas outside their native ranges than those which have not. For instance, *Triticum aestivum* L. and *Linum usitatissimum* L. have been widely grown in the British Isles for centuries and are clearly introductions. It is likely that herbs such as *Artemisia vulgaris* L. and *Tanacetum parthenium* (L.) Sch. Bip., of long-known medicinal value (e.g. Gerard 1633), are also widely introduced. Plants with no known use are less likely to have been moved outside their native ranges. As with the previously used criteria, this criterion cannot give a definitive answer in isolation. For example, *Chamaemelum nobile* (L.) All. has also been used as a medicinal plant (Gerard 1633) but is widely accepted as native.

METHODS

Data have been compiled from the literature, herbaria (**BEL, BIRA, BM, BRISTM, CGE, CMM, DBN, E, HAMU, HDD, HLU, K, LDS, LES, MANCH, MBH, NMW, NOT, OXF, RNG** and **RTE**; no material traced in **DCR, DHM, LCN, SFD, SUN, SWN** or **TBY**; herbaria abbreviations follow Kent & Allen 1984), the Biological Records Centre and the Threatened Plants Database, and correspondence with botanists.

On original specimens or photocopies of herbarium sheets from throughout its range, the following measurements were made:

1. Height from base of stem (excluding roots) to top of inflorescence or leaves (excluding flowers).
2. Number of nodes/pairs of leaves on main stem. It was sometimes difficult to discern separate nodes in the terminal inflorescences.
3. Number of nodes with branches. Typically the plants are branched below the middle, or after damage.
4. Length and width of largest leaf. This was usually selected from the middle of the main stem but sometimes in the lower inflorescence when stem leaves were not available.
5. Number of inflorescences. It was sometimes difficult to discern this for terminal inflorescence groups. Young, immature inflorescences were included.
6. Pressed corolla length. These are likely to be distorted by pressing, and sometime immature flowers may have opened during pressing.

Partial measurements were made for incomplete or damaged plants. Notes were also made on leaf tooting, pubescence and flower colour. Cultivated material was ignored.

COMPARISON AGAINST NATIVE/INTRODUCED CRITERIA

FOSSIL EVIDENCE

There are no fossil records of *Galeopsis segetum* in Britain (Godwin 1975). However, it is insect pollinated so there are unlikely to be pollen records, and it is also unlikely that, being a species of dry open habitats, its seeds would have fallen in places where they could have been preserved in places such as peat bogs.

HISTORICAL EVIDENCE

The historical records date from Ray (1670), which is of equivalent date to the first records for many native British species.

HABITAT

Galeopsis segetum is almost universally stated to be an arable weed in Britain. Table 1 lists the number of times it has been recorded for each habitat in Britain, which supports its occurrence as an arable weed. It is usually noted from light sandy soils (e.g. Yorkshire) or plateau gravels (e.g. Berechurch).

In Europe, it is also recorded as an arable weed and from waste ground, but also occurs in the summer-warm, Hemp-nettle silicate screes (*Galeopsietalia segetum*) with *Anarrhinum bellidifolium* (L.) Willd., *Epilobium lanceolatum* Sebast. & Mauri and *Senecio viscosus* L. (Ellenberg 1988). Presumably these screes were its natural habitat before it moved into open ground created by arable farming. Hegi (1975) recorded it from scree, gravel, sand, boulders, scrubby woods, paths, edges and quarries, exclusively on lime-deficient soils. Hess *et al.* (1972) noted it from montane, rarely subalpine, fields on rather damp, stony, lime-deficient ground in warmer, sheltered locations in Switzerland. Ellenberg (1988) categorised it as an Oceanic therophyte occurring in generally well lit places but also in partial shade, in generally warmer, sheltered situations, in dry to damp soils which are usually acidic (but also sometimes more neutral) and nitrogen-deficient.

TABLE 1. HABITATS OF *GALEOPSIS SEGETUM* IN BRITAIN COMPILED FROM HISTORICAL LITERATURE AND HERBARIUM RECORDS. REPEAT RECORDS FOR THE SAME HABITAT AND SAME SITE ARE NOT INCLUDED

Habitat	Number of records
Cornfields	12
Other fields (excluding cornfields)	5
Beach	1
Hedgebank	1
Gravel pit	1
Not stated	21

There are no records from equivalent natural siliceous scree/rock natural habitats in Britain, the nearest possible one being the beach. Prehistorically, it could have colonised arable land from native colonies on open ground, such as sands and gravels associated with major river catchments. On balance, its absence from natural habitats suggests an introduced status.

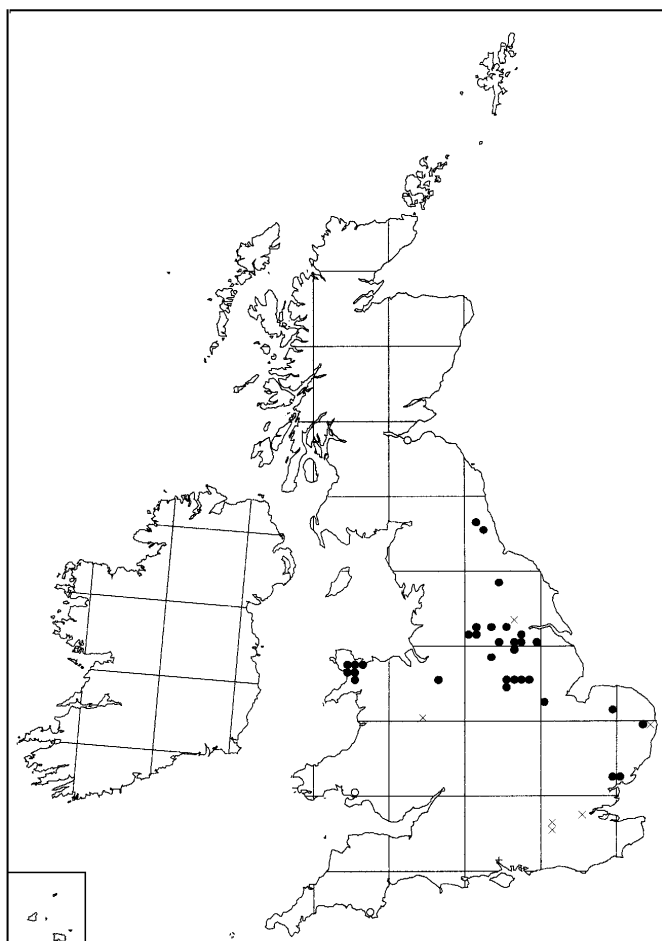


FIGURE 1. Distribution of *Galeopsis segetum* in Britain. ● native, ○ native status uncertain, + introduced, × error or probable error.

GEOGRAPHICAL DISTRIBUTION

Data on its distribution and occurrence in Britain have been compiled (Appendix 1) and are mapped in Figure 1. The distribution pattern is unlike that of any other species in Britain, and quite different to those of species normally regarded as introduced arable weeds such as *Ranunculus arvensis* L. or *Agrostemma githago* L. It is characteristic of arable areas with sandy soils in eastern England, with scattered records elsewhere.

In a wider context, *G. segetum* is a western European endemic and the British localities are certainly within the range over which it could be expected to be native from its distribution in Europe (Fig. 2). Townsend (1972) listed it as native in Belgium, Denmark, France, Germany, Italy, the Netherlands, Spain and Switzerland, and introduced to Austria, Croatia, Czech Republic, Hungary and Rumania. Hegi (1975) noted that, like *Scutellaria minor*, it is one of the few purely Atlantic and, at the same time, strictly calcifuge Labiates.

The unique distribution pattern which fits within the European context provides support for its native status.



FIGURE 2. Distribution of *Galeopsis segetum* in Europe, redrawn from Meusel & Jager (1992). ● native. ○ introduced.

TABLE 2. COMPARISON OF MORPHOLOGY OF ENGLISH, WELSH AND CONTINENTAL MATERIAL OF *GALEOPSIS SEGETUM*

	England	Wales	Continent	T-test comparison of British vs Continental material
Height, cm	26.9 ± 0.9 (n = 64)	19.9 ± 0.72 (n = 75)	24.7 ± 1.04 (n = 97)	P > 0.19
No. nodes	6.2 ± 0.14 (n = 63)	6.4 ± 0.14 (n = 76)	8.1 ± 0.16 (n = 97)	P << 0.001
No. pairs branches	1.8 ± 0.15 (n = 71)	1.3 ± 0.15 (n = 80)	3.0 ± 0.16 (n = 96)	P << 0.001
Leaf length, mm	35.0 ± 1.17 (n = 79)	27.1 ± 1.24 (n = 83)	30.4 ± 1.01 (n = 99)	P > 0.5
Leaf width, mm	15.6 ± 0.66 (n = 79)	13.6 ± 0.91 (n = 83)	11.6 ± 0.53 (n = 99)	P < 0.001
Leaf l:w ratio	2.31 ± 0.04 (n = 79)	2.19 ± 0.05 (n = 83)	2.8 ± 0.07 (n = 99)	P << 0.001
No. inflorescences	5.2 ± 0.66 (n = 76)	4.75 ± 0.52 (n = 83)	8.9 ± 0.87 (n = 51)	P << 0.001
Flower size, mm	28.1 ± 0.39 (n = 69)	27.6 ± 0.29 (n = 82)	28.1 ± 0.51 (n = 21)	P > 0.5

Figures are means ± standard error (number of samples). The significance of differences between British (i.e. England and Wales) and continental material was assessed using a two-tailed T-test with variances not assumed to be equal.

GENETIC DIVERSITY

Genetic diversity has been assessed from comparative morphology.

The British material is morphologically fairly uniform in leaf shape, leaf tothing and general pubescence, with the exception of material from a gravel pit in Southampton which is considered to be an introduction. Specimens are variable in size, and consequently in development of lateral branches. The Welsh material measured included a large number of small specimens collected for the Botanical Exchange Club by J. E. Griffith, which has rather biased the sample. If these smaller plants are excluded, there are no significant size differences between English and Welsh material. The flower colour is usually yellow, though in many specimens the flowers have faded and without colour notes it is impossible to be certain. Baker & Nowell (1854) noted that at Cantley it varied with white- and purple-tipped flowers. Windsor (1873) noted it with reddish flowers at Llanfairfechan.

To judge from the European material in British herbaria, *G. segetum* is generally more variable on the continent than in Britain, though Hegi (1975) regarded it as varying very little. Comparative morphological data for Britain and Europe are given in Table 2. European material has more nodes and more lateral branches, and although often taller, the mean sizes are similar. The larger number of lateral branches results in more inflorescences. The pubescence is more variable, some plants being fairly densely hairy on the leaves and other being less so. The leaves vary from being strongly toothed to almost entire, and they are often significantly narrower than in British material. There is one especially striking infraspecific variant noted from France, Italy and Switzerland, var. *nepetifolia* (Timb.) Briq., which has smaller, roundly-toothed leaves. Many specimens from Switzerland are shorter, with many branches. The flower colour is also more variable, though the corolla mean sizes are identical to British material. A few specimens from France were noted with white corollas, and sometimes the corollas are reddish (var. *varians* (Desv.) Thell.).

Some European plants, especially from France, are morphologically similar to British material, and the British plants fit with the general pattern of variation observed in the species. The relative uniformity of British populations is also not indicative of repeated introductions.

FREQUENCY OF KNOWN NATURALISATION

Galeopsis segetum appears to be a persistent casual introduction in eastern Europe, but it is not a species which appears to have readily naturalised either in Britain or elsewhere in the world.

REPRODUCTIVE PATTERN

Galeopsis segetum is probably predominantly a summer annual in Britain and Europe. It is not known whether it is self-pollinated or self-compatible, but most herbarium sheets have ripe seed suggesting it is probably so. Thus if an isolated seed was introduced, it is likely to produce a plant which has the potential to regenerate itself.

POSSIBLE MEANS OF INTRODUCTION

Given that it is often an arable weed, its seeds could have been introduced as a contaminant of imported grain, though as stated above, the distribution pattern is not indicative of this. The seeds are significantly smaller than those of cereals, but like many other Labiate species could have been introduced accidentally. Alternatively, it could have colonised Britain naturally from seed washed down the major European rivers such as the Rhine (it is abundant in parts of the catchment in Germany) whilst there was open sands and gravels for it to colonise earlier in this interglacial.

ASSOCIATED INSECTS

There is no information available on insects specifically associated with it which could indicate native status, and the chance to investigate this in Britain has long since passed.

USAGE BY MAN

Galeopsis segetum is not listed in the main British herbals (e.g. Gerard 1633) or noted by Ray (1670) to have been used as a medicinal herb, but it has been more widely used on the continent for various illnesses (e.g. lung complaints, spleen illnesses, etc.; Hegi 1975). However, there is no clinical or pharmacological evidence to support its usage (Wichtl 1994). It is possible that it could have been introduced as a medicinal herb but there is no evidence to support it.

DISCUSSION

Strong support for native status is given by the unique geographical distribution in Britain which fits within its context of a western European endemic, and the genetic uniformity (with one exception) which also fits within the European pattern. The early date of introduction is also supportive of native status.

Evidence against native status is given mainly by its occurrence as an arable weed and presumed naturalisation in eastern Europe. Its seeds could have been introduced with grain, or possibly as a medicinal herb as it has been used in Europe. No conclusions can be drawn from the absence of fossil evidence, its reproductive pattern, or associated insects.

On balance, we place greater emphasis on the geographical and genetic pattern, and accept it as native in north Wales and eastern England. There is no strong evidence against native status. However, there is no definitive answer and there will always be an element of doubt for many such species. We differ from the interpretation of its natural range as stated in Clapham *et al.* (1987) and Stace (1997), who regard it as native in Caernarvonshire and introduced elsewhere in Great Britain. Their interpretation may result from the slightly ambiguous legend for the map in Perring & Walters (1962) which, in addition to extinct native and casual post-1930 records, indicates records 'before 1930' only without qualification as native or introduced (by implication they should have been accepted as native). The lack of herbarium material or other information do not allow decisions about its status in a number of other sites (e.g. Loddiswell).

Its acceptance as native in north Wales now establishes a firm basis for a reintroduction programme.

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APPENDIX 1. RECORDS OF *GALEOPSIS SEGETUM* IN BRITAIN.

The records are listed in alphabetical order within vice-counties. Erroneous, unconfirmed or rejected records where published or in databases are listed in square brackets.

V.C. 3, SOUTH DEVON

Loddiswell (Blackdown Camp), 1931, W. C Bennett, T. Edmonds & D. A. (?) (Martin & Fraser 1939; no specimen traced).

V.C. 9, DORSET

[Bowen (2001) regarded old reports as errors for *G. angustifolia*; two specimens in **HLU** purporting to be *G. segetum* are both wrongly identified.]

V.C. 11, SOUTH HANTS

Southampton, in a gravel pit on Portswood Road near Belle Vue House, July 1837, R. Bligh (**E**). This specimen differs in leaf tooting and pubescence from other British collections.

V.C. 16, WEST KENT

[There are records for a small chalk pit out of Darenth Wood, and roadside from Dartford Heath to Green Street Green, 1833–1835, D. Cooper (Cooper 1836) which were accepted by Hanbury & Marshall (1899) but have never been verified by other botanists and for which no specimens have been traced in **RTE** or **WAR**.]

V.C. 17, SURREY

[Thames Ditton?, *H. C. Watson* (**E**); this specimen was probably sent by H. C. Watson from Thames Ditton where he lived and were not collected there wild.

High bank just before you reach Mickleham, on the left, and, Dorking chalk pit, 1833–1835, D. Cooper (Cooper 1836); like the Kent records without vouchers cited above, these are rejected, as they were by Salmon 1931.]

V.C. 19, NORTH ESSEX

Alresford, cornfield, 25 July 1873, 27 September 1873, 25 July 1874 and 16 August 1879, *E. G. Varenne* (**BIRM, BM, CGE, MANCH, OXF**).

Berechurch, in considerable abundance in one cornfield, 1846, and cornfields, 1851, *E. G. Varenne* (**BIRM, BM, E, HAMU, LIV, NMW**; Benthall 1848, Gibson 1862). Much if this material is short and damaged, presumably during harvesting the crops.

Elmstead, Villa Ponds, 1862, W. L. P. Garnons (Gibson 1862, no specimen in **SWN**).

V.C. 25, EAST SUFFOLK

[St Olaves, ‘among a very luxuriant growth of rushes there grew, to us, a very unusual state of *Galeopsis* not yet determined. It was quite as tall as *G. tetrahit* but differs from that species in the stem and flowers. It comes nearer to what we raised from seeds sent to us by a Continental correspondent, who gave them the name *G. villosa*. The flowers were pure white in dense whorls, and the stem was hairy rather than prickly, and not swollen above the joints’, Anon. (1862); accepted as *G. segetum* by Hind (1889) but the height, flowers and habitat are incorrect and the record is rejected.]

V.C. 27, EAST NORFOLK

Geldeston, undated, *Anon.* (**BM**).

V.C. 36, HEREFORD

[Specimens in many herbaria from Sedbury and variously dated c. 1903 onwards were cultivated by S. H. Bickham from material he collected near Bangor 1902 and 1903, and have not been consistently labelled as cultivated.]

V.C. 38, WARWICK

[Cited by Watson (1849) as probably an error of one of his correspondents.]

V.C. 40, SHROPSHIRE

[Casual in Botanical Division VIII, no other details (Lloyd & Rutter 1957); there are insufficient grounds on which to accept this record.]

V.C. 44, CARMARTHEN

Llangennech (Vale of the Lougher), 1912, D. Hamer (no specimen traced; Hamer 1912 states most species were confirmed by A. Bennett, though whether this one was or not is not known).

V.C. 49, CAERNARVON

Abergwyngregyn [Aber], beach near, undated but pre-1821, H. Davies (**BM**). Near Aber, July 1823 and August 1830, *W. Wilson* (**BM, CGE, NMW**).

'Bangor'. This area has numerous collections, but most are simply labelled as Bangor or near Bangor and there is no confirmation it actually occurred at Bangor itself. Griffith (1895) cites 'F[V]odal Ucha, F[V]odal Ganol, Goetra, etc.' and the records traced which may relate to these are as follows:

Fodol Farm: In a cornfield at Fodol Farm, near Bangor, 8 August 1888, *J. E. Griffith* (**BM, BEL, BRISTM, CBN, HLU, MANCH, NMW, OXF**). Near Fodol, July 1900, *G. C. Druce & J. E. Griffith* (**OXF**). Near Vodol, August 1900, *J. E. Griffith* (**BIRM, BM, BEL, BRISTM, DBN, E, OXF, RNG**). Near Vodol, 30 August 1901, *J. E. Griffith* (**BEL, BIRM, BM, CGE, LIV, MANCH, NMW, OXF**). Vodol Lecha/Habodel, fair plenty in corn, August 1926, *Miss E. Vachell, Mrs E. Knowling, Lady J. C. Davy & Ms A. M. David* (**NMW**; there is also a detailed account of the search in E. Vachell's diaries). Fodol Farm, 20 July 1957, Mrs W. B. Watt (Biological Records Centre, cited as Port Dinorwic by Ellis 1983). Fodol Farm, south of Hafodol Farm, 1975, J. H. Fremlin (Biological Records Centre).

Fodol Ganol: Fodol Ganol, 6 August 1916, *M. L. Wedgwood* (**MBH**). Fodol Ganol, Dinorwic, 29 August 1926, *T. J. Foggitt* (**BM, CMM, HDD, LDS**).

Goetre: In the cornfields and on the earth walls about 2 miles from Bangor on the road to Llanberis, August 1773, *Anon.* (**BM**). Potato field 2 miles from Bangor on the Caernarvon road, 22 August 1830, *J. E. Bowman* (**BM**). In a cornfield on the right hand, two and a half miles from Bangor on the new road to Caernarvon, 6 August 1840, *J. B. Wood* (**BM, MANCH, TBY**). About 1 mile east of railway between Treborth and Caernarvon, Port Dinorwic, 14 August 1905, *A. O. Hume* (**RNG**).

Hafodol-uchaf. Upper Vodol Farm, in plenty in a cornfield, 12 August 1927, *E. M. Reynolds* (**BIRA**). Hafodol Farm, Bangor, 8 August 1936, *H. S. Redgrove* (**BM**). Hafodol Uchaf, 4 September 1948, *C. E. Raven* (**RNG**). This farm is next door to Fodol Farm and the records could be from the same place.

Menai Bridge: Near Menai Bridge, July 1852, *H. S. Fisher* (**LIV**). Near Menai Bridge/corn field near Bangor, 23 & 24 August 1852, *W. S. Skellon* (**LIV, MANCH**). Near Menai, Carnarvon, August 1919, *G. C. Druce* (**OXF**).

Llanfairfechan: I have met with a form of it at Llanfairfechan ... the flowers however being reddish, 1868, J. Windsor (Windsor 1873); this record is accepted as he obviously knew both *G. segetum* and *G. angustifolia* in Yorkshire.

Other material which it has not been possible to ascribe to any of these localities is as follows: Bangor, near, 1802, *H. Davies* (**K**). Bangor, 1806, *D. Turner* (**E, HAMU, K**). Bangor, August 1826, *W. Wilson* (**CGE**). Bangor, September 1840, *J. Ralfs* (**MANCH**). Bangor, 1843, *Anon.* (**LIV**). Near Bangor, 1850, *W. R. Crotch* (**BM, CGE, CMM, E, MANCH**). Bangor, June 1888, *Anon.* (**LIV**). Near Bangor, 1890, August 1893, August 1895, *J. E. Griffith* (**BEL, BIRM, BM, BRISTM, CGE, DBN, E, HDD, LIV, K, OXF, MANCH, NMW, NOT**). Bangor, undated, *Miss E. Potts* (**LIV**). Bangor, August 1901, *H. J. Riddelsdell* (**BM**). Cultivated ground/arable lands, Bangor, 4 August 1902, 4 August 1903 and September 1903, *S. H. Bickham* (**BM, CGE, E, LDS**). Bangor, August 1904, *E. Drabble* (**BM**).

V.C. 52, ANGLESEY

Anglesey, 1814, *D. Turner* (**CGE**). Anglesey, August 1852, *W. S. Skellon* (**BIRM**).

V.C. 53, SOUTH LINCOLN

Bourne, 28 July 1838, J. Dodsworth (Gibbons 1975 cites a specimen in **LLN** but it could not be traced in 2001, Mrs R. Weston, pers. comm.)

V.C. 54, NORTH LINCOLN

Carrhouse, 1899, S. Hudson (Gibbons 1975; no specimen traced).

Twigmoor, sandy field near, Oolite, July 1877, *W. Fowler* (**BM, CGE, CMM**; Gibbons 1975).

[A record for Tetley Hall, variously dated 1981–1988 and by various apparent recorders though originally V. Wilkin in at least three databases, is a data-processing error for *G. tetrahit* which was the species recorded originally; pers. comm. Mrs R. Weston and V. Wilkin, 2001].

V.C. 56, NOTTINGHAM

Annesley, near, undated, B. Eddison (Howitt & Howitt 1963, citing contribution to Eddison's Flora 1839, not seen). A rare plant only once found by us between Kirkby and Linby, 1880, Mrs A. Gilbert (Gilbert 1880).

Balderton, cornfields (Ordoyno 1807).

Barnby in the Willows, cornfields (Ordoyno 1807).

Coddington, cornfields (Ordoyno 1807).

Everton Carr, sandy cornfield, 30 August 1918, *Mrs C. I. Sandwith & N. Y. Sandwith* (**LDS, K**; Howitt & Howitt 1963). They revisited the site on 9 August 1939 but this time found a form of *G. speciosa* without any coloration on the lip (**BM**).

Farnsfield, cornfields (Ordoyno 1807).

Newark-on-Trent, near. W. Hudson (Turner & Dillwyn 1805). Near Newark, August 1860, *H. Ibbotson* (**NOT**).

Nottingham, undated, *J. Dickson* (**E**).

Oxton Forest, 1839, G. Howitt (Howitt 1839).

[High Park, Blidworth, September 1862 in **CGE** = *G. tetrahit*]

V.C. 58, CHESHIRE

Acton Grange, September 1905, *E. Drabble* (**BM**).

V.CC. 59 AND 60, SOUTH AND WEST LANCASTER

[Cited for Lancashire by Hudson (1798) but not accepted subsequently (e.g. Watson 1849). Druce (1932) cited an erroneous record for v.c. 59 but the original reference has not been traced.]

V.C. 61–65, YORKSHIRE

Yorkshire, cornfields, undated, *G. Don* (**E**). Yorkshire, 1820, *W. J. Blake* (**OXF**). Yorkshire, undated, *A. Bloxham* (**CGE**).

V.C. 61, SOUTH-EAST YORK

On the Wolds (Baines 1840; no further details or specimens traced).

V.C.62, NORTH-EAST YORK

Thirsk, near (Baines 1840; no further details or specimens traced).

V.C. 63 SOUTH-WEST YORK

Barnby Dun, in a sandy field, July 1885, *H. Johnson* (**CMM**, Lees 1888).

Bawtry, in a cornfield near, July 1803, J. Salt (Lees 1888; specimen supposed to be in **SFD** but not traced in 2001).

Beacon Hill, Halifax, 1820, herb. R. Leyland ('long since disappeared' Baines 1840). Beacon Hill near Halifax, sparingly, undated but pre-1867, *Anon.* (**K**). [Lees 1888 erroneously cites this for 1775, J. Bolton].

Cantley, abundant in cornfields, varying with white- and purple-tipped flowers, undated, G. E. Smith (Baker & Nowell 1840).

Near Castle Hill, Huddersfield (Hobkirk 1859).

Darfield (Ray 1670).

'In cultivated fields about Fixby, near Rastrick. It is found amongst oats, peas, potatoes, etc.' (Anon. (?J. Bolton) 1775; Lees 1888, Crump & Crossland 1904).

Hall Bower, Huddersfield (Hobkirk 1859).

Huddersfield, 1876, P. Inchbald (Lees 1888).

[Records cited for 'Selby' refer to the Gateforth-Brayton record in v.c. 64.]

Sheffield (Ray 1670).

Wakefield (Ray 1670).

V.C. 64, MID-WEST YORK

Between Gateforth and Brayton near Selby, undated, probably collected by *J. Backhouse* (**E**; Lees 1888). Gateforth, near Selby (Baines 1840). Gateforth, undated, C. H. Middleton (Lees 1888). Selby, undated, *E. Drabble* (**BM**).

V.C. 66, DURHAM

Birtley, two or three examples on the edge of a cornfield, 1917, J. W. H. Harrison (Graham 1988). Ryton/Winlaton/ Crawcrook/Stephen's Hall: the various combinations of these localities seem to belong to the same area, which are now part of the outskirts of Gateshead (L. Jessop, pers. comm. 2001). Near Ryton, 1829, *W. C. Telyan* (**HAMU**, not in **WAR** as cited by Graham 1988). Between Ryton and Winlaton, corn fields, 1832, July 1833 and July 1839, and near Stephen's Hall, 15 October 1833, *R. B. Bowman* (**BIRM**, **BM**, **CGE**, **DBN**, **HAMU**, **OXF**). 1833, *W. Christy* (**CGE**). Ryton, 1833, herb. *C. Conway* (**NMW**). Ryton, 1839, *J. E. Bowman* (**BEL**, **BM**, **CGE**, **E**, **RNG**). Ryton, 1855, *Anon.* (**NMW**). Cornfield, June 1870, *M. A. Johnson* (**LES**). Ryton, undated, W. A. Stables (?). Ryton, Crawcrook, Darlington, undated, *N. J. Winch* (**E**).

V.C. 71 ISLE OF MAN

[Rejected as an error for *G. speciosa* by Allen (1984).]

V.C. 83, EDINBURGH

Field at Lochend(s) near Edinburgh, July 1836, *G. McNab* (**K**). This is the first record for Scotland, though there is an element of doubt as the specimen is mixed with another of *G. speciosa* and the collectors' surname is written 'Macnab' though the soil on the roots of the specimens looks similar. Lochend is a small district in Edinburgh noted for other rarities, and for a small area of serpentine rock (D. McKean, pers. comm. 2001).

NOTE ADDED IN PRESS

There are two records for *Galeopsis segetum* in the recently published *New atlas of the British and Irish flora* (Preston *et al.* 2002) which require comment:

The record for v.c. 37 in SO75 is based on a record by Gaut (1918) where it appeared in the second year following clearance of a part of Long Coppice on sandy and stony soil (J. Day, pers. comm., 2002). R. G. Gaut was a careful, reliable observer with an excellent reputation, and the soil type is correct. This is the only record for the vice-county which has not been reported again, and it is not a species of woodland (*Galeopsis tetrahit* is more likely). No herbarium material is known, and the record is best regarded as unconfirmed.

The record for v.c. 92 in NJ60 is now thought to be an error (K. Fallowfield, pers. comm., 2002).

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- PRESTON, C. D., PEARMAN, D. A. & DINES, T. G. (2002). *New atlas of the British and Irish flora*. Oxford University Press, Oxford.