

Welsh Groundsel survey 2025

Report No: 992

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Crynodeb gweithredol

Mae'r greulys Gymreig (*S. cambrensis*, gweler Ffigur 1) yn rhywogaeth endemig a geir ar hyn o bryd yng ngogledd Cymru yn unig ac yn unman arall yn y byd. Esblygodd bron i 100 mlynedd yn ôl yn dilyn croesi rhwng y greulys frodorol (*Senecio vulgaris*) a chreulys Rhydychen (*Senecio squalidus*), sy'n rhywogaeth estron, ac mae'n un o'r enghreifftiau clasurol o esblygiad cyflym rhywogaeth newydd. Ers ei darganfod yn 1925, mae'r rhywogaeth wedi'i chofnodi mewn tua 34 neu 35 o safleoedd, pob un yng ngogledd Cymru ar wahân i ymddangosiad yn Nociâu Leith yng Nghaeredin o 1973 hyd 1993. Fel arfer, mae'r rhywogaeth yn blanhigyn unflwydd sydd i'w weld mewn cynefinoedd trefol a maestrefol, gan gynnwys lleiniau ymyl ffordd, tir diffaith, waliau, meysydd parcio, a dreifiau, gan dyfu'n aml gyda chymuned o rywogaethau cynefinol eraill.

Mae'r safleoedd yng Nghymru wedi clystru'n bennaf o amgylch pedair ardal – rhwng y Waun a Rhiwabon, cyffiniau Wrecsam, rhwng Ewloe a'r Wyddgrug, ac o Fochdre i Landdulas ar arfordir y gogledd. Yn hanesyddol, roedd y planhigyn yn doreithiog yn rhai o'r safleoedd hyn, gyda miloedd o blanhigion wedi'u cofnodi, yn enwedig yn yr 1980au pan oedd ar ei anterth. Fodd bynnag, ymddengys fod y rhywogaeth wedi dioddef dirywiad ers hynny ac wedi'i cholli o lawer o safleoedd. Yn yr arolwg cynhwysfawr diwethaf o'r holl safleoedd hysbys (tua 40 lleoliad; Boyett, 2011), dim ond mewn pum safle y canfuwyd y planhigyn ac roedd nifer y planhigion unigol wedi gostwng o 2,226 yn 1983 i ddim ond 168 yn 2011. Nid oedd yn bresennol mwyach yn ei hen gadarnle yn Wrecsam a'r cyffiniau.

Yn 2024, dangosodd arolwg o wyth safle gan yr Ymddiriedolaeth Adfer Rhywogaethau ac un safle arall gan Grŵp Fflora Sir Ddinbych mai dim ond pum safle oedd yn cynnal planhigion, gyda chyfanswm o ddim ond 156 o blanhigion. Gan nad oedd llawer o safleoedd eraill wedi cael eu hymweld â nhw ers rhwng 38 ac 14 o flynyddoedd, trefnwyd yr arolwg hwn yn 2025 i ailymweld â 12 safle hanesyddol ychwanegol, yn ogystal â'r pum safle hysbys, er mwyn meithrin dealltwriaeth gynhwysfawr o ddosbarthiad presennol y rhywogaeth. Nod yr ymweliadau hefyd oedd asesu cyflwr cynefin safleoedd hanesyddol gyda'r bwriad o helpu i lywio rhaglen ailgyflwyno, pe bai hyn yn cael ei ystyried yn angenrheidiol.

Ymwelwyd â safleoedd rhwng 12 Mai a 25 Mehefin 2025. Chwiliwyd lleoliadau cofnodion blaenorol, ynghyd â lleoliadau â chynefin addas yn yr ardal gyfagos. Lle canfuwyd planhigion, cymerwyd cyfeirnodau grid deg ffigur ynghyd â rhywogaethau cysylltiedig. Lle na chanfuwyd planhigion, rhestrwyd rhywogaethau cysylltiedig yn y safle diwethaf y gwyddys eu bod yn bresennol. Yn anffodus, profodd 2025 yn flwyddyn heriol, ac roedd sychder mawr drwy gydol y gwanwyn a'r haf. Effeithiodd hyn ar lawer o gymunedau unflwydd cynefinol, ond roedd planhigion o rywogaethau *Senecio* cysylltiedig eraill, yn enwedig y greulys (*S. vulgare*), yn bresennol yn y rhan fwyaf o safleoedd, gan awgrymu, yn ôl pob tebyg, y byddai'r greulys Gymreig wedi bod yn bresennol pe bai'n dal i fod ar y safle.

Yn y pum safle hysbys, roedd niferoedd poblogaeth i lawr o'u cymharu â 2024, gyda dim ond 52 o blanhigion wedi'u cofnodi. Ni ddarganfuwyd unrhyw blanhigion mewn unrhyw safleoedd eraill, gan gadarnhau sefyllfa hynod beryglus y rhywogaeth. Er bod safleoedd y

Waun a Llanddulas i'w gweld yn sefydlog i raddau helaeth, mae'n ymddangos bod safle Alltami yn dioddef dirywiad hirdymor gwirioneddol, ac mae planhigion yn diflannu, yn enwedig o ben gorllewinol y safle. Mae safleoedd Pentre a Bryn-yr-eos hefyd yn gwneud yn wael ac maent yn fach iawn ac o dan fygythiad. Mae'r canlyniadau hyn yn cefnogi dosbarthiad y rhywogaeth fel rhywogaeth sydd mewn perygl difrifol. Trafodir ffactorau sy'n sbarduno'r dirywiad, gan gynnwys y defnydd dro ar ôl tro o chwynladdwyr (yn enwedig glyffosad, y chwynladdwr a ddefnyddir amlaf gan gynghorau mewn lleoliadau trefol a maestrefol; PAN UK, 2025); strimio lleiniau ymyl ffordd dro ar ôl tro yn y gwanwyn a'r haf; ailddatblygu ac adnewyddu tir gwastraff, ffiniau, dreifiau a manau parcio; ac ewtroffeiddio pridd o ganlyniad i ddyddodiad nitrogen deuocsid o bibellau gwacáu cerbydau a dŵr ffo o gaeau.

Mae canlyniadau'r arolwg hwn yn dangos bod angen gweithredu ar frys ar lawr gwlad i amddiffyn y rhywogaeth rhag diflannu. Cyflwynir cynllun gweithredu pum mlynedd o hyd sy'n argymhell bod pob safle presennol yn cael ei fonitro bob blwyddyn i ganfod amrywiadau blynyddol yn y boblogaeth, bod pob safle presennol yn cael ei reoli'n briodol lle mae'r planhigyn yn dal i dyfu a lle mae ardaloedd o gynefin cyfagos a allai fod yn addas ar gyfer cytrefu, a bod rhaglen ailgyflwyno yn cael ei chynnal i ailsefydlu planhigion mewn pedwar i chwe safle gan ddefnyddio hadau a gasglwyd o safleoedd presennol. Argymhellir chwe safle ailgyflwyno posibl yn seiliedig ar ganlyniadau'r arolwg.

Executive summary

Welsh Groundsel (*S. cambrensis*, see Figure 1) is an endemic species currently found only in north Wales and nowhere else in the world. It evolved nearly 100 years ago following hybridization between native Groundsel (*Senecio vulgaris*) and non-native Oxford Ragwort (*Senecio squalidus*) and is one of the classic examples of rapid evolution of a new species. Since its discovery in 1925, the species has been recorded from around 34 sites, all in north Wales apart from an appearance at Leith Docks in Edinburgh from 1973 until 1993. The species is usually an annual of urban and suburban habitats, including road verges, waste ground, walls, car parks and driveways, often growing with a community of other ruderal species.

The Welsh sites have mainly clustered around four areas – between Chirk and Ruabon, around Wrexham, between Ewloe and Mold, and from Mochdre to Llanddulas on the north Wales coast. Historically, the plant was abundant at some of these sites, with thousands of plants recorded, especially in the 1980s when it was at its peak. However, the species appears to have suffered a decline since then and has been lost from many sites. In the last comprehensive survey of all known sites (around 40 locations; Boyett 2011), the plant was found at just five sites and the number of individuals had reduced from 2226 in 1983 to just 168 in 2011. It was no longer present at its former stronghold in and around Wrexham.

In 2024, a survey of eight sites by the Species Recovery Trust and one other site by the Denbighshire Flora Group showed that only five sites supported plants, with a total of just 156 plants. Since many other sites had not been visited for anything between 38 and 14 years, this 2025 survey was arranged to revisit 12 additional historical sites, as well as the

five known sites, in order to build up a comprehensive understanding of the species' current distribution. It also aimed to assess the habitat condition of historic sites with a view to helping informing a reintroduction programme, should this be deemed necessary.

Sites were visited between 12th May and 25th June 2025. The positions of previous records were searched, along with locations with suitable habitat in the immediate surrounding area. Where plants were found, 10 figure grid references were taken along with species associates. Where plants were not found, species associates were listed at the last known site. Unfortunately, 2025 proved a challenging year, with a severe drought through spring and summer. This impacted many ruderal annual communities, but plants of other related *Senecio* species, especially Groundsel (*S. vulgare*), were present at most sites suggesting that Welsh Groundsel would likely have been present if it was still at the site.

At the five known sites, population numbers were down compared to 2024, with just 52 plants recorded. No plants were found at any other sites, confirming the extremely precarious situation of the species. Although the Chirk and Llanddulas sites appear to be largely stable, the Alltami site seems to be suffering a genuine long-term decline, with a loss of plants particularly from the western end of the site. The Pentre and Bryn-yr-Eos sites are also faring badly and are very small and vulnerable. These results support the classification of the species as Critically Endangered. Factors potentially driving the decline are discussed, including the repeated use of herbicide (particularly glyphosate, the most frequently used herbicide by councils in urban and suburban settings; PAN UK 2025), repeated strimming of roadside verges in spring and summer, the redevelopment and renovation of waste-ground, boundaries, driveways and parking areas, and soil eutrophication from NO_x deposition from vehicle exhausts and run-off from fields.

The results of this survey demonstrate that urgent action on the ground is needed to protect the species from extinction. A five-year Action Plan is presented, recommending that all extant sites are monitored every year to build up a picture of annual population fluctuations, that all extant sites receive appropriate management where the plant is still growing and areas of surrounding habitat that could be suitable for colonisation, and that a reintroduction programme is undertaken to re-establish plants at 4-6 sites using seed collected from extant sites. Six potential reintroduction sites are recommended based on the results of the survey.

Introduction

Welsh Groundsel (*S. cambrensis*, see Figure 1) is an endemic species currently found only in north Wales and nowhere else in the world. It evolved nearly 100 years ago following allopolyploid hybridization between native Groundsel (*Senecio vulgaris*) and non-native Oxford Ragwort (*Senecio squalidus*) and is one of the classic examples of rapid evolution of a new species (Abbott & Lowe 2004, Abbott *et al.* 2009, Hegarty *et al.* 2012).

The plant was first discovered in 1925 growing at Brynteg near Wrexham, but wasn't recognized as a new species until 1948 when it was also discovered at Cefn-y-bedd (Flintshire). It was officially described as a new species in 1955 (Ingram & Noltie 1995). Since then, populations have been found at around 35 locations, all of which are in north

Wales (see Figures 2 & 3). The only exception is an appearance at Leith Docks, Edinburgh, from 1973 to 1993, which probably arose through independent re-hybridisation of the species (Abbott *et al.* 1983). The Welsh sites have mainly clustered around four areas – between Chirk and Ruabon, around Wrexham, between Ewloe and Mold, and from Mochdre to Llanddulas on the north Wales coast (see Figure 3).

Figure 1. A particularly fine example of Welsh Groundsel, growing beside the wall outside Chirk Council offices, 2025.



Figure 2. British distribution of Welsh Groundsel from Atlas 2020 (Stroh et al. 2023).

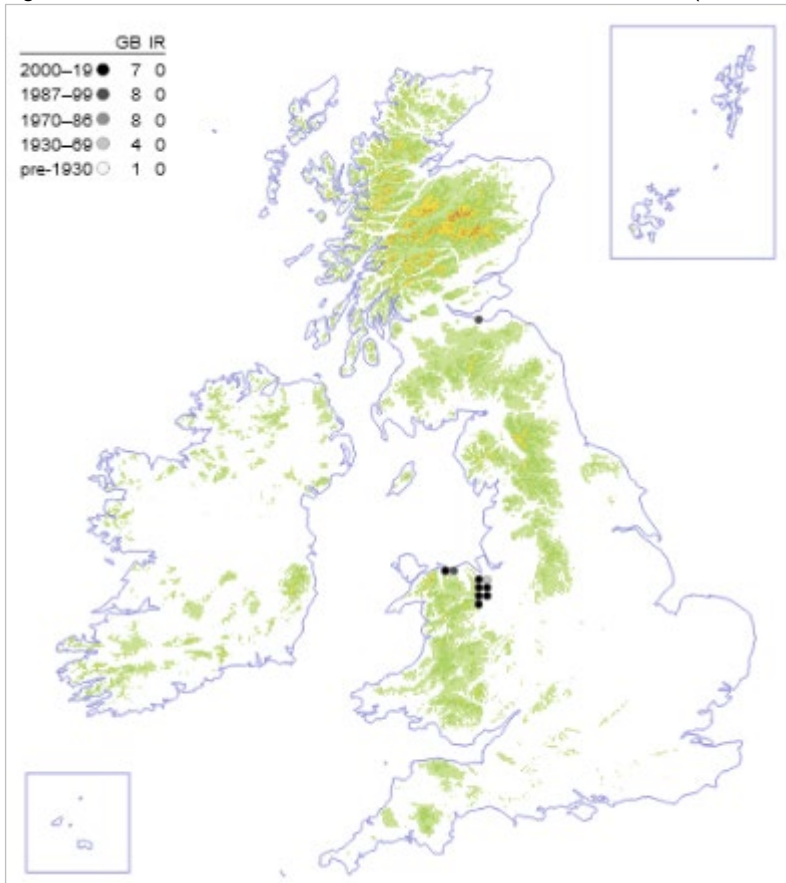
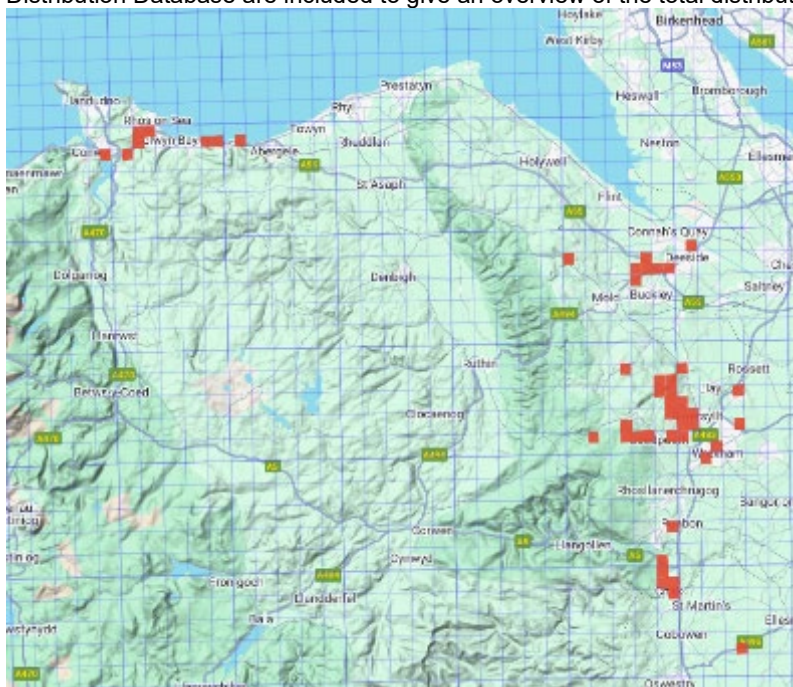


Figure 3. Tetrad distribution of Welsh Groundsel in north Wales; all current and historic records from the BSBI Distribution Database are included to give an overview of the total distribution ([BSBI database](#)).



Although some of these sites once supported thousands of plants, the species has not been recorded from many of them recently and may have been lost. For example, it was last recorded in Mochdre in 2000, at Ruabon in 2002, at New Broughton in 2003 and at Gwersyllt in 2010. Unfortunately, Welsh Groundsel has become an overlooked species over the last few decades, perhaps suffering from its weedy character and less-than-appealing habitat along roadside pavements and on waste ground. This lack of interest means it has dropped from the radar, precisely at a time when the use of herbicides and excessive tidying of urban and suburban sites have taken their toll. Anecdotal evidence suggests some populations have succumbed to herbicide and repeated strimming of vegetation, and the real risk that this endemic Welsh species might become extinct has prompted the current survey.

Identification

Much has been written elsewhere regarding the identification of *S. cambrensis* and, in particular, potential confusion with its parent species *S. vulgaris* and *S. squalidus*. Given the variability in leaf morphology, it is more reliable to use floral and seed characteristics. To quote Boyett (2011):

‘The main source of recorder error when surveying *S. cambrensis* is misidentification. To determine whether an individual is *S. cambrensis* or radiate *S. vulgaris* requires close inspection of the achenes, involucre bract, and pollen grain sizes. It is not practical to carry this out in the field, and so voucher specimens need to be taken for analysis. *S. cambrensis* and radiate *S. vulgaris* occur in mixed populations and so it is difficult to identify all individuals in an area. During the surveys in 1982-1984 carried out by Ingram and Noltie (1995) it was found that radiate *S. vulgaris* was present at 57% of the sites for *S. cambrensis*’.

Of course, if only one or two individuals of *S. cambrensis* are present in a population, taking a voucher specimen is neither possible or desirable.

The presence of mixed populations of *S. cambrensis* and rayed and unrayed forms of *S. vulgaris* is particularly important, as confusing rayed forms of *S. vulgaris* for *S. cambrensis* will lead to an overestimation of the *S. cambrensis* population. In the determination of voucher specimens, T.C. Rich and Z. Ahmed suggest that mean pollen size, seed size and involucre bract length are the most reliable characters, but even with these there is overlap (Boyett 2011). Rayed forms of *S. vulgaris* were seen in 2024 and 2025 at Alltami, Chirk and Llanddulas. For the purpose of this study, Table 1 below summarises the characters used for identification, adapted from Richards (1975), Lowe & Abbott (2002, see also Appendix B) and Boyett (2011). Once you get your eye in for *S. cambrensis*, plants often have a characteristic flower with rather ‘stubby’ petals (although this character is very variable) and a thick, flask-shaped involucre (the structure supporting the petals, see Figure 4). Its leaves are also often considerably more dissected than *S. vulgare* and have a characteristic ‘woolly’ appearance when young and clustered on the growing shoot (Figure 5).

Table 1. Main used to separate the Senecio taxa encountered in this study, adapted from Richards (1975), Lowe & Abbott (2002) and Boyett (2011). Achene length, and pollen diameter (marked with an asterisk above) are the most reliable characters to identify *S. cambrensis*, although even with these there is overlap with other taxa.

Character	<i>S. squalidus</i>	<i>S. vulgaris</i>	<i>S. vulgaris (rayed)</i>	<i>S. cambrensis</i>
Number of ray florets	12-15	0	7-13	8-15
Length of ray florets (mm)	8-10	0	2-9	4-7
Capitulum dimensions (mm)	10 x 5	10 x 3.5	10 x 3.5-4.0	11-13 x 4-5
Number of involucral bracts	4-8	10-12	10-12	10-12
Length of involucral bracts (mm)*	3	3	3	4-5
Achene (seed) length (mm)*	2.0-2.5	2.0-2.7	2.0-2.7	2.5-3.7
Pollen diameter (um)*	20-25	20-25	20-25	30-36
Number of pollen pores	3	3	3	4
Stigmatic papillae	40-60	0	0	30-50

Figure 4. Plants of *S. cambrensis* often (but not always) have many short “stubby” petals and flask-shaped involucre. By contrast, the rayed-form of *S. vulgaris* (right) tends to have fewer, longer petals (but not always) and a narrower involucre. Both these taxa grow together in most remaining sites so it’s important to examine a combination of more reliable characters (see Table 1).





Figure 5. *S. cambrensis*, showing highly dissected foliage (and characteristic flowers) on left, and very characteristic woolly/mealy appearance of young leaves on right (a feature not seen in young *S. vulgaris*).





Ecology and habitat

Senecio cambrensis is a ruderal annual, behaving more like its *S. vulgaris* parent in occupying open sites with disturbed substrates that are generally free from competition. It can sometimes be a short-lived perennial, though, like *S. squalidus*. It cannot tolerate dense shading from trees and shrubs and is most commonly found on roadsides, growing on thin layers of accumulated debris at the pavement edge and along gutters, beside walls and fences, and along the bottom of hedgerows. It also occurs in gravel and discarded rubble, and through pavement cracks. Occasionally, it grows in walls and even as a weed in gardens next to roads.

The vegetation community in which it grows is also typically ruderal. The most common associates at historic and current populations are (in order of frequency): *Taraxacum* agg., *Sonchus oleraceus*, *Alliaria petiolata*, *Anisnatha sterilis*, *Atriplex patula*, *Senecio vulgare*, *Urtica dioica*, *Lapsana communis*, *Galium aparine*, *Jacobaea vulgaris*, *Elymus repens*, *Hedera helix*, *Geum urbanum*, *Holcus lanatus*, *Cochlearia danica*, *Clematis vitiflora*, *Epilobium hirsutum*, *Anthriscus sylvestris*, *Artemisia vulgaris*, *Bromus hordeaceus*, *Centranthus ruber*, *Cirsium arvense*, *Dactylis glomerata* and *Rumex obtusifolia*. Many of these are surprisingly vigorous and competitive.

Interestingly, *S. cambrensis* seems to occupy transient microsites within patches of ruderal vegetation, where small open areas are maintained by disturbance but are lost after a few years as perennial competitors take over. For this reason, maintenance of metapopulations depends on repeated, often stochastic disturbance to provide a mosaic of new microsites for occupation. In the past, large-scale disturbance (such as development leading to the creation of bare road verges) has allowed very large populations to form, sometimes with many hundreds or even thousands of plants.

At sites where populations are declining (e.g. Chirk), there appears to be a slight reduction in the supply of these disturbance microsites. Observation of the exact spots where the plant once grew suggest that, for example, parking areas and driveways where the plant once occurred have been tarmacked over, hedges with bare soil at their base have been replaced with solid walls, and there is generally less of the development that creates disturbed road verges and waste ground. However, even where disturbance microsites do still occur, these are now less likely to be colonised as the total species population has been impacted by the repeated application of herbicide and strimming, leading to fewer seeds moving around the environment. It is also possible that other edaphic factors are reducing the suitability of disturbance sites for colonisation, such as increased eutrophication from vehicle exhausts and winter salt application, as well as the increased occurrence of spring drought.

Germination tends to occur in flushes from spring through to autumn when conditions are favourable. Autumn-germinating plants can overwinter (seedlings are frost-tolerant) and flower as early as April. The main flush of flowering is in May and June, usually with another flush in September, although plants can be in flower any time from May to October. The main constraint on growth and flowering is drought, which can severely impact populations and result in the death of most – or even all – individuals in a cohort.

Pollination is mainly by hoverflies (including Marmalade hoverfly, White-footed Hoverfly and Thick-legged hoverfly) but also Silver-Y moths and, rarely, Early Bumblebee. Each capitulum has around 60 flowers, of which around 50% set viable seed. Seeds have a pappus and are dispersed by wind, an important factor in roadside sites subject to lots of vehicle turbulence. They germinate in the light (not darkness) and 90%+ of seed germinates in temperatures above 15°C. Seed longevity is not known, but in one trial those kept refrigerated for a year showed no loss of viability (Ingram & Noltie 1995). The lack of information on seed bank ecology is significant, as it affects our understanding of how the species should be managed and for how long recovery from the seed bank might be possible. However, its parent species, *S. vulgare*, is known to have a rather short-lived seed bank of around two to five years, with seed viability in uncultivated soil declining by 45% per year and no viable seeds in cultivated soil after five years (Cornell CALS 2019). Similarly, its other parent *S. squalidus* has a transient to short-term seed bank, with most seeds losing viability within 1–2 years but some surviving four years (Roberts 1986).

Historic & current distribution and status

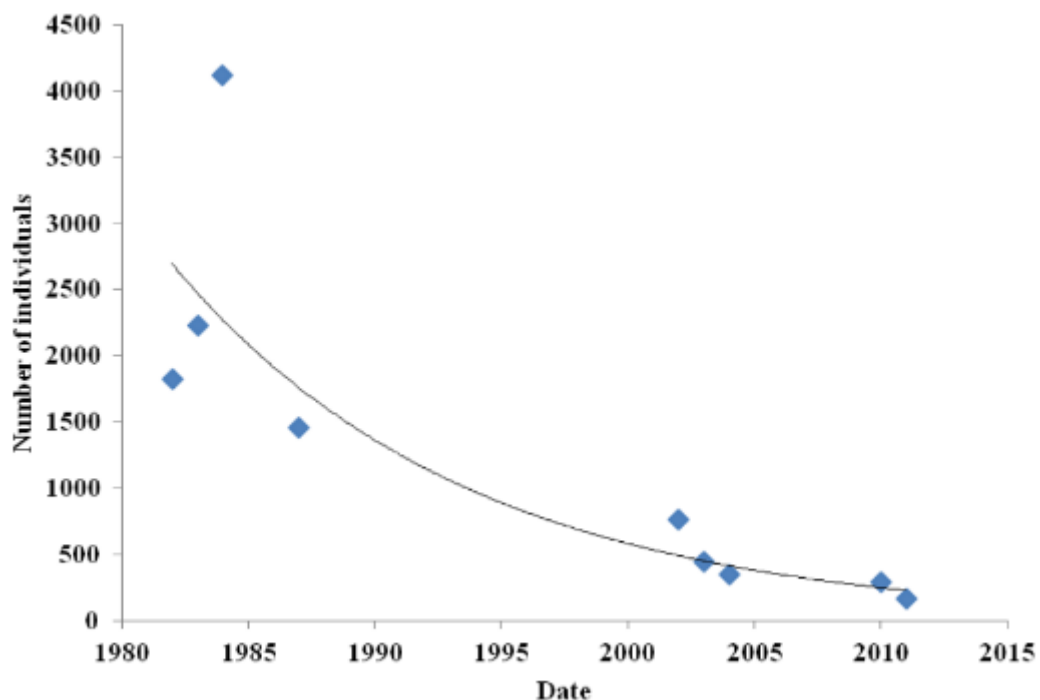
Historically, Welsh Groundsel has been recorded from around 30-40 sites in north Wales. Note that the definition of 'a site' – where one begins and another ends – is difficult, especially with a highly mobile ruderal annual that occupies linear features, and is not interpreted in the same way by different recorders. This ambiguity is further compounded by recorders using different names for sites (rather than standardised names), making it difficult to compare lists of sites. Assessments therefore vary in the number of sites; for example, Boyett (2011) lists 41 sites but these are demarcated by occurrences in different (often contiguous) tetrads, overestimating the actual number of sites. *Atlas 2020* suggests there were around 35 sites in the early 1980s (Stroh *et al.* 2023). Rationalising the available data, a full list of 34 historic and current sites appears in Appendix B.

Over the years, interest in recording the species has varied. Most records are ad-hoc one-offs, but systematic surveys of populations have been undertaken at various points in time:

- 1982 to 1984: Ruth Ingram and Henry Noltie (see Ingram & Noltie 1984)
- 1987: Vicky Morgan
- 2002 to 2004: R.J. Abbott, H.E. Ireland and H.J. Rogers (see Abbott *et al.* 2007)
- 2010 & 2011: Lucy Boyett (see Boyett 2011)

These provide incredibly useful snapshots of the status of the species over time, but note there has not been a survey of most of the sites for 14 years. Boyett (2011) used the data to assess the decline in the number of sites and overall population, concluding that there had been a significant decline in the number of individuals from 2226 in 1983 to just 168 in 2011 (see Figure 6) and that the number of areas occupied had decreased from 4 to 3, with the species no longer found in and around the Wrexham area. She also suggested that '*S. cambrensis* should be classed as *Endangered*.... *If no management is carried out for the species, it is very likely that it may follow the Edinburgh population and become extinct in the near future*'.

Figure 6. Number of *Senecio cambrensis* individuals found during the surveys carried out by Ingram & Noltie (1995) in 1982-1984, Morgan (unpublished 1987) (cited in Abbott *et al.*, 2003) in 1987, Abbott *et al.* (2007) in 2002-2004 and Boyett in 2010-2011. Graph taken from Boyett (2011).



Given the lack of recent site surveys and anecdotal concerns that populations were declining and sites were being lost, Dr Trevor Dines surveyed a small sample of sites in June 2024 for the Species Recovery Trust (SRT). Eight sites with records made in or after 2000 were identified from the BSBI Distribution Database, and of these, five were found to support plants (**Llanddulas, Bryn-yr-Eos, Chirk, Pentre** and **Alltami**). Three other sites (**Mochdre, Ewloe** and **New Brighton**) did not support plants. In addition, Delyth Williams

(Vice-county Recorder for Denbighshire) and the Denbighshire Flora Group surveyed one other site (**Pentre Broughton**) but no plants were found. Welsh Groundsel was therefore found in five sites in 2024, which collectively were home to just 156 plants.

Using the findings of this 2024 survey, the status of the species has been assessed in the New Vascular Plant Red Data List for Great Britain (Stroh *et al.* 2025) as being Critically Endangered (CR), noting that:

‘Five extant locations remain, reflecting a considerable decline in recent years, down from 12 locations since 2010 (c. 58% decline) and 28-35 historically. A comprehensive survey of recent sites in 2024 found 158 individuals (Dines, in prep.), and this number in a year that is considered to be a 'good' one due to a wet spring which has helped germination. The largest population contained 73 individuals, the two smallest had just 8 plants each. It is assessed as CR based on the number of individuals (fewer than 250), continuing decline observed, and extreme fluctuations in the number of mature individuals (i.e. some years just a few individuals are present, this year 158 - it's a ruderal and there have been big population changes in the historical records). It would also qualify as EN on Criterion B (restricted geographic range, continued decline, extreme fluctuations) and also Criterion D (fewer than 250 individuals)’.

Since this assessment is based on populations that occur entirely in Wales, the species should also be regarded as Critically Endangered in Wales, as suggested by Dines (2008).

Because the 2024 survey suggested the Welsh Groundsel population was very small and that sites had indeed been lost, it became clear that a more comprehensive survey of historical sites and surrounding areas was urgently needed. Using data from the BSBI Distribution Database, twelve additional sites - all with records made in or after 1987 - were identified for survey in 2025, alongside the five sites found in 2024, giving 17 sites in all. Survey of the twelve additional sites was funded by NRW, while SRT funded resurvey of the five extant sites found in 2024. These 17 sites were surveyed between 12th May and 25th June 2025 (see Table 3) and each site is described in detail in the Site Accounts below. Note that Vice-county names are included after each site name, followed by a summary of the number of plants found in 2025 (and 2024 if relevant) in bold. Full records from the 2025 survey are provided in Appendix C.

Table 2. List of sites for survey in 2025. Sites in green were visited in 2024 and supported plants. Sites in yellow had not been recorded since the 'Last Year Seen' column.

Site number	Site name	Grid reference	First year seen	Last year seen	Years since last record	Max count (year)	Most recent count (year)
1	Llandulas	SH8878, SH8978	1984	2024	0	1500 (1984)	38 (2024)
2	Minera	SJ2551, SJ2651, SJ275	1953	1987	38	94 (1981)	6 (1987)
3	Brymbo	SJ2953	1985	1987	38	16 (1985)	16 (1987)
4	Bryn-yr-Eos	SJ2840	2004	2024	0	15 (2010)	9 (2024)
5	Chirk	SJ2839	1980	2024	0	1000s (2002)	30 (2024)
6	Pentre	SJ2840	2002	2024	0	16 (2010)	8 (2024)
7	Ruabon	SJ2943	1982	2002	23	50 (1982)	2 (2002)

Site number	Site name	Grid reference	First year seen	Last year seen	Years since last record	Max count (year)	Most recent count (year)
8	Southsea, Wrexham	SJ2951	1982	1987	38	94 (1987)	94 (1987)
9	New Broughton	SJ3051	2003	2003	22	21 (2003)	21 (2003)
10	Ffos-y-go	SJ3054	1982	1987	38	44 (1982)	14 (1987)
11	Gwersyllt	SJ3153	1957	2010	15	145 (1982)	20 (2010)
12	Rhostyllen	SJ3249	1982	2002	23	365 (1982)	13 (2002)
13	Marford Quarry	SJ3555	2011	2011	14	40 (2011)	40 (2011)
14	Ffrith	SJ2855	1948	1994	31	492 (1983)	19 (1987)
15	Alltami	SJ2766, SJ2866	1986	2024	0	247 (2010)	73 (2024)
16	Llanfynydd	SJ2856	1975	1994	31	109 (1982)	4 (1987)
17	Stansty Park	SJ3152	1982	2002	20	419 (1983)	5 (2002)

Site 1. Llanddulas (Denbighshire)

36 plants in 2024, 17 in 2025.

Located along the A547, this site occupies a 300-metre section of road between Llanddulas and Hen Golwyn (Old Colwyn). Historically, it has been one of the largest of all Welsh Groundsel populations, with ca.1500 plants recorded in 1984.

Today, it is much diminished, with just 36 plants found in 2024 and 17 in 2025 (although it remains the 2nd-largest extant population). Plants are located mainly on the pavement on the north (coastal) side of the road, growing in the thin soil and detritus that has accumulated beside a wooden fence. Along the western-half of the site (up to the junction with Llysfaen Station Road), this fence backs onto woodland and is very overgrown, with Sycamore (*Acer pseudoplatanus*), Ivy (*Hedera helix*), and, especially, Traveller's-joy (*Clematis vitalba*) growing out over the pavement edge. *S. cambricum* plants were found at SH89327.78261, SH89340.78256, SH89352.78259, SH89356.78254, SH89398.78248, SH89409.78244, SH89429.78244, SH89443.78243, SH89474.78240 & SH89547.78236, Robust herbaceous perennials also occupy this space, particularly Hemp-agrimony (*Eupatorium cannabinum*), Red Valerian (*Centranthus ruber*) and False Brome (*Brachypodium sylvaticum*). As a result, Welsh Groundsel is now restricted to small open patches of soil within the vegetation that are probably maintained by drought. In 2024, a few plants were found growing on the eastern verge of Llysfaen Station Road (SH89494.78245 & SH89492.78249), but this spot was also very overgrown with Traveller's-joy and no plants were found here in 2025.

In contrast, the verge of the A547 on the eastern-half of the site (east of Llysfaen Station Road) is much more open and the fence backs onto grassy fields. *S. cambricum* plants were found at SH89582.78240, SH89573.78241, SH89556.78239, SH89552.78238, SH89546.78236, SH89507.78235, SH89501.78236 & SH89498.78237. In 2024, plants in this area grew amongst thin, droughted vegetation including Beaked Hawk's-beard (*Crepis vesicaria*), Sedum English Stonecrop (*Sedum anglicum*) and Red Valerian (*Centranthus ruber*). No plants were found here in 2025.

In addition, a few plants were also found on the south side of the road between the pavement and a tall stone wall (SH89662.78227, SH89659.78226 & SH89628.78226 in 2024 and one tiny plant at SH89646.78227 in 2025). These were growing in a very thin accumulation of soil which was highly droughted, with patches of Sedum English Stonecrop (*Sedum anglicum*).

The main issue at Llanddulas is the overgrowth of Traveller's Joy and Ivy onto the pavement to the west of Llysfaen Station Road. This vegetation should be cut back (well beyond the fence if possible) to open-up patches of soil at the edge of the pavement. The *Clematis* is particularly vigorous here and may need regular cutting, or even targeted applications of herbicide to control it.

Figure 7. Location of plants (yellow lines) on north side of A547 and on the south side of the road (yellow dots) in 2024. Red line shows position of plants in 2025. Note the woodland backing the north side of pavement to west of Llysfaen Station Road, from where *Clematis vitalba* is encroaching.



Figure 8. Welsh Groundsel growing on pavement of A547, west of junction with Llysfan Station Road. Most plants were amongst dense vegetation beside fence backing onto woodland (left). A few were also found on the kerb beside the road (right).



Figure 9. Dense overgrowth of Traveller's-joy (*Clematis vitalba*) onto the pavement of A547, severely reducing availability of micro-sites for Welsh Groundsel.



Site 2. Minera (Denbighshire)

No plants in 2025.

Two separate sites have been recorded in this area, one within the village of Minera (six plants in 1987) and another in the car park of the nearby Minera Quarry (seven plants in 1987).

At the site in the village on Church Road (SJ271.518) there was quite a bit of suitable habitat in 2025, with pavement and roadside edges, the bases of walls, small car parking areas and driveways entering houses and gardens. The community of plants was typically ruderal, with lots of *Senecio vulgaris* as well as *Cymbalaria muralis*, *Taraxacum*, *Poa annua*, *Prunella vulgaris*, *Plantago major*, *Alliaria petiolata*, *Anagallis arvensis*, *Atriplex patula*, *Scorzoneroïdes autumnalis*, *Anthriscus sylvestris*, *Anisantha sterilis*, *Elymus repens*, *Galium aparine* and *Lapsana communis*. The last record for Welsh Groundsel here came with a little caution that the plants might have been rayed forms of Groundsel, but all the Groundsel seen was unrayed. All streets in the surrounding area (all along Church Road and adjoining roads) were searched, from St Mary's Church to Minera Hall Road.

The potential for reintroduction is assessed as medium. The abundance of *Senecio vulgaris* and a healthy ruderal community at this site suggest it could support *S. cambricum*, but the lack of a continuity of records or a metapopulation in the area mean suggest it might not persist for long.

Figure 10. Church Road, Minera village. Lots of suitable ruderal habitat on various roads through the village. The abundance of Groundsel (right) was notable in several spots.



At the Minera Quarry site (SJ258.519), seven plants were seen in 1987 “on waste ground by the side of the road”. Today, the area is a car park for the NWWT Minera Quarry Reserve, and it seems to have been landscaped in the recent past, with new fences, areas of gravel and some planting of various native and non-native species. One side of the road here was a row of large conifers in 2021 (Google Earth) and these have now been removed. In 2025, the car park area was edged with ruderal vegetation including *Galium aparine*, *Geranium robertianum* & *G. lucidum*, *Epilobium hirsutum* & *E. montanum*, *Chamaenerion angustifolium*, *Leucanthemum vulgare*, *Geum urbanum*, *Holcus lanatus*, *Taraxacum*, *Cirsium vulgare*, *Sonchus asper* & *S. oleraceus* and *Rumex crispus*. Several invasive shrubby species (*Rubus fruticosus* and alien *Cotoneaster* species) were also present, as well as more unusual planted species such as *Dasiphora (Potentilla) fruticosa*.

The potential for reintroduction is assessed as low. Although quite ruderal in character, the vegetation was too dense and vigorous, and the rapid growth of shrubby species would present challenges for the long-term survival of *S. cambricum*.

Figure 11. Road verge in car park of NWWT Minera Quarry reserve. Note density of growth, especially from *Rubus* and alien *Cotoneaster*.



Site 3. Brymbo (Denbighshire)

No plants in 2025.

In 1987, “at least 16 plants in the car park of the English Methodist Chapel” were recorded. It’s not known what the surface of the car park was at that time, but today it is tarmacked (and has been since at least 2009). Despite this, the site (SJ29422.53824) still appears to be in good condition, with a rich ruderal flora along the base of the walls and in areas of broken tarmac. Species include frequent *Mycelis muralis* and *Centranthus ruber* as well as *Galium aparine*, *Geum urbanum*, *Epilobium hirsutum*, *Taraxacum spp.*, *Sonchus oleraceus*, *Cirsium vulgare*, *Epilobium montanum*, *Urtica dioica*, *Cardamine hirsuta*, *Jacobea vulgaris* and *Geranium robertianum*. More woody plants included *Acer pseudoplatanus*, *Fraxinus excelsior*, *Rubus fruticosus* and *Clematis vitalba*, the latter being rather invasive and growing over other plants. One wall at the back of the Chapel supported Oxford Ragwort (*Senecio squalidus*) as well as ferns such as *Asplenium scolopendrium*, *A. ruta-muraria*, *A. trichomanes* and *Dryopteris felix-mas*. The surrounding streets were also searched, but no plants found. Some areas showed evidence of herbicide use, including the pavement outside the chapel.

The potential for reintroduction is assessed as high. The owners of the Chapel appear to be relaxed about the amount of vegetation around the edge of the car park, and don’t

seem to be using herbicides, so they might well be amenable to a reintroduction. They might also be willing to look after the plant in the longer term, including controlling the Clematis.

Figure 12. Brymbo Methodist Chapel car park, showing rich ruderal flora around the base of the walls. Note exuberant growth of *Clematis vitalba* that would need controlling if a reintroduction is attempted.





Site 4. Bryn-yr-Eos (Denbighshire)

8 plants in 2024, 1 plant in 2025.

This site lies alongside the A5 trunk road, not far from the roundabout with the B7050 to Chirk (see site 5). In the past, plants have been found near this roundabout, forming a large meta-population along the roads in this area and, indeed, reaching the Pentre site (see site 6 below). The Bryn-yr-Eos site is a 30-metre stretch of pavement on the north-east side of the A5. Here, eight plants were found growing in 2024 in a layer of detritus along the edge of the pavement, and in thin soil beside the hedge (SJ28512.40278, SJ28516.40275, SJ28517.40274, SJ28518.40272, SJ28521.40268, SJ28525.40265, SJ28530.40257, SJ28533.40253). Associates were few but included *Anisantha sterilis*,

Sonchus oleraceus, *Atriplex patula* and *Cochlearia danica*. In 2025, this area was severely droughted and no plants were found here, but one was found on the verge to the south-east at SJ28622.40136. This was in a slightly shaded position with trees overhead and frequent *Hedera helix*, *Mercurialis perennis* and *Anisantha sterilis* along with *Atriplex patula*, *Cochlearia danica*, *Taraxacum*, *Lapsana communis*, *Torilis japonica* and *Alliaria petiolata*.

The habitat along the verge appears to be in good condition, with lots of open patches of soil that are being maintained by drought. Vegetation is very thin and unlikely to be sprayed with herbicide. Lots of suitable habitat occurs along the same verge to the north-west of the site (to the junction with the B5605 to Pentre), but no plants have been found. No management action is needed at this site.

Figure 13. Bryn-yr-Eos. Location of plants on the north-east verge of A5 in 2024 (yellow line) and the single plant in 2025 (red dot).

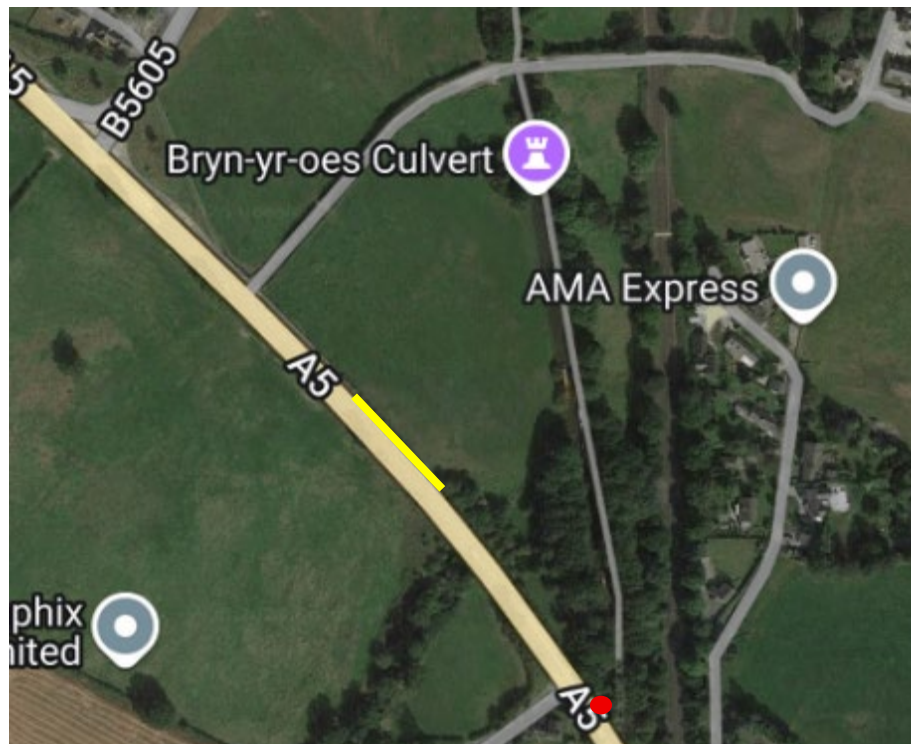


Figure 14. Plants of Welsh Groundsel growing on the edge of the A5 at Bryn-y-Eos in 2024. Note droughted condition of other vegetation.



Site 5. Chirk (Wrexham)

30 plants in 2024, 13 in 2025.

In Chirk, Welsh Groundsel has been found growing along the length of Holyhead Road through the town (the B5070 down to the roundabout with the A5), and nearby on Wern Road and Crogen Road. Since it was first found here in 1980, there have been around 90 records from about 40 different spots in the town; the map below (Figure 15) shows the points at which the plant has been recorded. This doesn't mean the species is abundant and recorded from all these places each year. Instead, it usually appears at a handful each year, coming and going as micro-sites become available. The species was more abundant in the past, though; from 2002 to 2006, for example, thousands of plants were recorded and it was often described as 'frequent' with 'hundreds' of plants on both sides of the road. This is certainly not the case today.

Figure 15. Location of all historical records of Welsh Groundsel in Chirk.



Since around 2006, repeated applications of herbicide along pavement edges has severely reduced the population, with dead plants often being reported after spraying has taken place. The species has also suffered from hand weeding, strimming and the general tidying-up of pavement edges and garden entrances, as well as the overgrowth of hedges and verges with dense vegetation. As a result, sites have reduced by 95% in the town and today it is regularly reported from just two spots, both of which supported plants in 2024 and 2025.

A. Holyhead Road (B7050) in the centre of Chirk (Figure 16), growing in thin soil on the edge of the pavement along the base of a hedge and wall in front of the Town Council offices (SJ29048.37989 & SJ29048.37910, 13 plants in 2024, 7 in 2025) and outside the neighbouring Shannon’s Carpets (SJ29049.37944 & SJ29049.37970, 6 plants in 2024, none in 2025). Two plants were also found

beside the steps of the Council offices (SJ29055.37999) in 2024. Associates in the hedge site included frequent *Mercurialis perennis*, *Anisantha sterilis* and *Hedera helix*, along with *Atriplex patula*, *Cochlearia danica*, *Taraxacum*, *Alliaria petiolata*, *Torilis japonica* and *Lapsana communis*. This is the highest density of large plants found anywhere in any of the surveys, with several plants growing up to 2ft tall.

The section of hedge & wall in front of the Council office was scheduled for rebuilding and was cut down to nearly ground level in 2024, exposing an earth ridge on which many plants had grown. However, about 10 plants had been hand weeded from this spot by the caretaker and were lying discarded on the remains of the hedge (prior to weeding, this spot was therefore home to at least 23 plants). During the survey, a Council volunteer came out to enquire what I was looking at, and as a result an urgent meeting then ensued with the Chair of the Council (Jackie Allen) and several other councillors. They knew nothing of the plant but were keen not to damage the population further. In 2025, the site had not been developed, but there was evidence of herbicide application next to the wall. Discussions with the council will be continued to secure the future of the site.

Figure 16. Sections of pavement supporting Welsh Groundsel outside the Town Council offices (The Parish Hall) and outside Shannon's Carpets (Shannon Sales) in 2024 (yellow lines) and 2025 (red line). A single plant was also found beside the steps of the Council offices in 2024 (yellow dot).

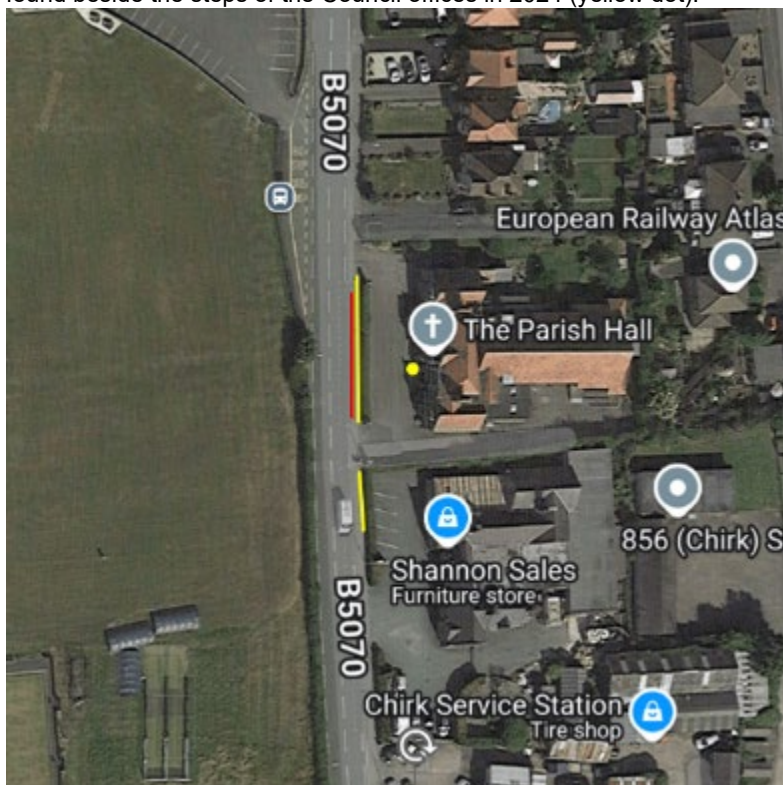


Figure 17. An exceptional plant of Welsh Groundsel beside the wall & hedge outside Chirk Town Council office in 2024. This by far is the largest specimen of any plants seen in the 2024 2025 surveys.



Figure 18. The cut-down hedge outside the Council Office (left) in 2024, along which about 10 plants of Welsh Groundsel had been hand weeded and discarded (right).



B. Junction of Wern Road and Crogen Road (SJ28964.39000, SJ28952.38997 & SJ28939.39018, 11 plants in 2024, 6 in 2025). These are residential roads, just off the B5070 Holyhead Road, and Welsh Groundsel is found growing in a thin layer of detritus between the pavement and wall, and in the cracks between pavement and wall. Most plants are on Crogen Road, located underneath a very wide-growing *Leylandii* hedge. The plants are rooted into the pavement detritus collected underneath the hedge and reach sideways for the light. A few plants are also found on Wern Road, sheltering behind a lamppost. Associates are few, but include *Sonchus oleraceus* and *Galium aparine*, as well as *Taraxacum*, *Lapsana communis*, *Sambucus nigra*, *Urtica dioica* and *Capsella bursa-pastoris*.

The main issue at this site is the size of the overgrown *Leylandii* hedge, which overhangs the pavement by several feet. This potentially reduces the area in which Welsh Groundsel can grow. Cutting the hedge back might improve the situation, as long as it's not done too radically and changes the habitat too much (such as removing the layer of detritus into which Welsh Groundsel roots). Management at this site therefore needs to be considered carefully before work is undertaken. Welsh Groundsel also used to grow at other spots at the northern end of Wern Road, and on the main B5070 northwards of this spot. No plants could be found here, despite some suitable habitat, and in 2025 there was evidence of herbicide use on grassy verges in this area. It may also be that the hedges and verges of the B5070 have become a bit too overgrown – they are currently dominated by a very dense growth of Barren Brome (*Anisantha sterilis*).

Figure 19. Location of pavement plants (yellow line) under *Leylandii* hedge on Crogen Road, and in one spot beside a lamppost on Wern Road (yellow dot). Plants were found at both sites in 2024 and 2025.

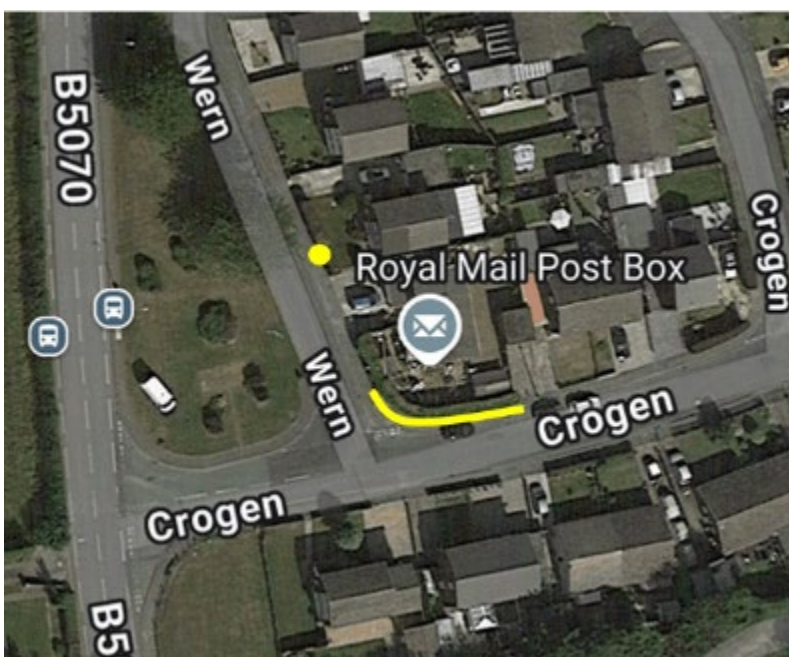


Figure 20. Large plants under the Leylandii hedge on Crogen Road, 2024. Note the plant on the right is rooted into the ground under the hedge and reaching for the light.



Site 6. Pentre (Denbighshire)

8 plants in 2024, 1 in 2025.

This site is on the small road (B5605) from the A5 to the village of Pentre. It lies just 0.4 miles from Bryn-yr-Eos (see Site 4). In the past, plants have been found at various spots along this road, and indeed in Pentre village itself. Despite searching the length of the road from the A5 to the north-east end of the village, plants have only found in two spots (four plants at SJ28561.40741 and four at SJ28547.40722 in 2024, one plant at SJ28555.40729 in 2025). All plants were growing between the pavement and hedge on the north-west side of the B5605. Interestingly, the plants were cohabiting with frequent Groundsel (*Senecio vulgaris*), providing a good opportunity for comparison. Other associates include *Anisantha sterilis*, *Sonchus oleraceus*, *Taraxacum* and *Lactuca serriola*. The hedge is mainly

composed of *Acer pseudoplatanus*, *Crataegus monogyna*, *Fraxinus excelsior* and *Hedera helix*.

The habitat appears to be in good condition along the length of the road and through the village, although some of the hedges in the area where the plants were found may be a little overgrown and spreading over the pavement.

Figure 21. Location of plants on pavement of B5605 to Pentre. Four plants were found at each yellow dot in 2024, one plant at the red dot in 2025.



Figure 22. Large plants of Welsh Groundsel on pavement beside B5605 to Pentre. On the right, a plant of Groundsel (left) can be seen growing beside Welsh Groundsel (right).



Site 7. Ruabon (Denbighshire)

No plants in 2025.

This site is in a rural setting on the edge of Plas Bennion Road, just to the north of Plas Madoc. It is surrounded by agricultural fields and buildings, although a solar farm was recently developed in one of the fields. Two plants were recorded on the road verge by Sarah Whild in 2008, and four in 2012 by Vicky Morgan. It is assumed these were on the east side of the road along the pavement (rather than under the hedge on the west side of the road). In 2025, the site still looked suitable, but no plants were seen. Google Earth images from 2009 to 2021 show the verge to be in good condition, although the 2021 images suggest some enrichment with abundant *Taraxacum* and some *Urtica dioica*.

In 2025, a long stretch of the road was searched from the bend at SJ2879.4414 to the junction with Llangollen Road at SJ2910.4369. The hedges in the immediate vicinity of the old *S. cambricus* records are mostly *Crateagus monogyna* with some *Fraxinus excelsior*, *Acer pseudoplatanus* and *Corylus avellana*, as well as *Tamus communis* and *Rosa* sp. The pavement flora is quite rich, with frequent *Alliaria petiolata*, *Geum urbanum*, *Elymus repens* and *Anisantha sterilis* as well as *Jacobaea vulgaris*, *Cirsium arvense*, *Urtica dioica*, *Rubus fruticosus*, *Taraxacum*, *Holcus lanatus*, *Dactylis glomerata*, *Bromus hordeaceus* and *Lapsana communis*. The rapidly spreading alien roadside grass *Polypogon viridis* was also noted.

The potential for reintroduction is assessed as high, as the habitat is in good condition and it appears to have escaped repeated spraying by herbicide (and is unlikely to be sprayed given its rural location). There is also the fact that plants were recorded over a period of at least four years in the past (2008 to 2012), although the last record was only 13 years ago.

Figure 23. Ruabon site, 2025, showing areas of verge that are potentially suitable for reintroduction near entrance to solar farm.





Site 8. Southsea, Wrexham (Denbighshire)

No plants in 2025.

This site, just to the east of Wrexham, was recorded in 1987 when Vicky Morgan noted a large population of 94 plants “along the NW side of the B5430, and at the junction with Smithy Road.”. The site lies on the rural-urban fringe, backed by woodland and farmland opposite, but also very close to the residential streets of Southsea. Like other more rural sites, it seems to have escaped applications of herbicide, and Google Earth images shows the site to have been in good condition from 2009 to 2023, with lots of ruderal species and even – perhaps – plants of *S. cambrensis* in 2023 (although this is very difficult to tell from the photographs – see Figure 24 below). It must also be noted that the *Senecio* population here is likely to include both *S. cambrensis* and rayed forms of *S. vulgaris*; Boyett (2011) notes that one of her voucher specimens from here could well be rayed *S. vulgaris*.

In 2025, the habitat was found to be in excellent condition, with a diverse ruderal community along a long stretch of verge. A few plants in leaf (e.g. at SJ30141.51706) could potentially have been *S. cambricum* but were, almost certainly, *S. vulgare* which was frequent at the site. The hedgerow was perhaps a bit overgrown, but was composed of a wide variety of species, some of which suggest a base-rich influence. Woody species included *Ilex aquifolium*, *Poplar* sp., *Crataegus monogyna*, *Corylus avellana*, *Acer campestre*, *Fraxinus excelsior*, *Ligustrum vulgare*, *Quercus robur*, *Rosa* sp. and *Prunus spinosus*. Verge-edge vegetation included *Poa annua*, *Epilobium* sp., *Geum urbanum*, *Artemisa vulgare*, *Plantago lanceolata* & *P. major*, *Rubus fruticosus*, *Vicia sepium*, *Senecio vulgaris*, *Jacobea vulgaris* and *Matricaria discoidea*. Some of these plants were also growing in cracks in the pavement. The road verge was searched from the end of the woodland at SJ2982.5165 to the junction with Smithy Road, as well as neighbouring roads

in Southsea (Church Road, Colliery Road, High Street, Bank Street, Bridge Street and Southsea Road to the junction with Tanyfron Road). Note that another old site (Pentre Broughton, Brynteg, last recorded 1987) lies nearby

The potential for reintroduction is assessed as high, as there is little evidence of current or historic herbicide application, there is a large quantity of suitable habitat, and there is a rich ruderal flora including *S. vulgare*. Although the last record was 38 years ago, a large number of plants (94) were found, so it's possible the population survived for some time after this. The site is also very close to [Groundwork North Wales](#) (an environmental and social charity that works with vulnerable and disadvantaged local communities) that might be interested in helping restore and look after the site. The site certainly deserves a repeat survey in 2026 to see whether *S. cambrica* plants are present.

Figure 24. Southsea site, 2025. Pavement edge and cracks with ruderal flora along B5430, and at junction with Smithy Road (bottom right).







Figure 25. Google Earth image from 2023 showing verge of B5430 with possible plants of *Senecio cambrensis*.



Site 9. New Broughton (Denbighshire)

No plants in 2025.

Compared to many others, this is a more recent site that was last recorded in 2003, when M.M. Cole noted the plant was “frequent along a roadside in New Broughton (SJ30785149 to SJ30845145). This places the site on the B5101 Southsea Road, between junctions with

Tegid Drive and Millfields Road. Today, the site appears rather inappropriate for *S. cambicum*, mostly consisting of steep banks on both sides of the road that are very overgrown with long, rank grass. Species included dominant *Dactylis gomerata* and *Elymus repens* as well as *Anthriscus sylvestris*, *Hordeum murinum*, *Bromus hordeaceus*, *Anisantha sterilis*, *Alliaria petiolata*, *Holcus lanatus*, *Cirsium arvense*, *Atriplex patula*, *Taraxacum*, *Rumex obtusifolia*, *Jacobaea vulgaris*, *Polygonum aviculare*, *Plantago major* and *Lolium perenne*. A short section of hedge has a more open ruderal flora but is rather shaded. Surrounding roadsides were searched, but little suitable habitat was available. No plants were found.

Images on Google Earth suggest the grass banks have regularly been strimmed of vegetation in spring and summer, and to have been heavily planted with daffodils.

The potential for reintroduction is assessed as low, as the vegetation is too long and rank, perhaps encouraged by the regular strimming and subsequent thatch of dead vegetation that encourages robust species.

Figure 26. New Broughton site, with rank grass on one roadside bank, and shady verge under hedgerow.





Site 10. Ffos-y-go (Denbighshire)

No plants in 2025.

Around 14 plants were recorded here in 1987, in two spots at SJ308543. Today, the site appeared slightly overgrown and heavily shaded by trees, especially *Fagus sylvatica* and *Acer pseudoplatanus* on the opposite side of the road. The hedges were composed of *Acer pseudoplatanus*, *Fraxinus excelsior*, *Sambucus nigra*, *Aesculus hippocastanum* and *Rubus fruticosus*, while the verge flora included *Alliaria petiolata*, *Geum urbanum*, *Geranium robertianum*, *Hedera helix*, *Urtica dioica*, *Galium aparine*, *Anthriscus sylvestris* and *Epilobium ciliatum*. Surrounding verges were searched, including a short stretch of more open, sunny verge opposite Olive House. This looked more appropriate, but was dominated by *Anisantha sterilis*, *Holcus lanatus*, *Urtica dioica* and *Rubus fruticosus*. No plants were found.

The potential for reintroduction is assessed as low, as the vegetation is rather overgrown, little ruderal habitat was available, and the last recorded population was recorded a long time ago and was very small.

Figure 27. Ffos-y-go site. Verges now very overgrown and shaded by large Beech on opposite side of road.



Site 11. Gwersyllt (Denbighshire)

No plants in 2025.

There are two separate sites in this area, about 300 metres apart. One is the verge of Summerhill Road, where 5 plants were last recorded in 1987, and the other in Prince of Wales Court, a small cul-de-sac off Bottom Road, where plants were recorded “along a bare pathway by the hedge” in 2010.

On Summerhill Road, there is a variety of habitats, including grassy verges, wooded verges, pavements, the base of brick and stone walls and garden driveways. The pavement flora in 2025 was predominantly ruderal, especially around a traffic-calming

island, with *Senecio vulgaris*, *Sonchus oleraceus*, *Taraxacum*, *Euphorbia peplus*, *Epilobium hirsutum*, *Holcus lanatus*, *Hieraceum sp.*, *Atriplex patula*, *Lapsana communis* and *Jacobaea vulgaris*. Some of the walls were covered with *Hedera helix* and topped with *Buddleja davidii*, while *Clematis vitalba* and *Solanum dulcamara* were also present. The road was searched from the junction with Top Road (SJ31195331) to Livery Stables (SJ31295303), as well as parts of Wheatsheaf Lane and Moss Road, but no plants were found.

Google Earth images show that part of the area had extensive stands of Japanese Knotweed in 2009/11; these have now been eradicated but there is evidence of ongoing herbicide use on the roadsides (e.g. May 2022).

The potential for reintroduction is assessed as medium-low, as there is a diversity of habitat over a large area which supports a good ruderal flora. The last record was a long time ago, however, and only 5 plants were recorded at that time.

Figure 28. Gwersyllt, Summerhill Road site, showing diversity of ruderal habitat at the site.



The other site is a small path from Prince of Wales Court leading down to Heol Hyffryd, where plants were recorded by a hedge. However, this hedge seems to have now been removed and replaced with fencing panels. Google Earth shows the hedge in place in 2011, but gone in 2021. There is still a ruderal flora along the edges of the path, including *Euphorbia peplus*, *Taraxacum*, *Lapsana communis*, *Epilobium montana* & *E. obscurum*, *Polygonum aviculare*, *Geum urbanum*, *Hordeum muralis*, *Galium aparine* and *Holcus lanatus*.

The potential for reintroduction is assessed as very low, as the habitat seems to have been modified and, although there is a ruderal flora, it's very limited in extent.

Figure 29. Gwersyllt, Prince of Wales Court site, showing new fencing on one side, replacing a hedge where *C. cambricum* was last recorded.



Site 12. Rhostyllen (Denbighshire)

No plants in 2025.

This is a large and important site, consisting of around 320 metres of the NW verge of the A5152 from Rhostyllen to Wrexham. It has a long history of *S. cambrensis*, from 1982 (when 365 plants were found) to the last record in 2002, when Sarah Whild recorded 13 plants. The site comprises two sections. The first, closest to Rhostyllen, has a hedgerow of *Crataegus monogyna*, *Fraxinus excelsior*, *Ilex aquifolium*, *Prunus spinosa* and *Ligustrum vulgare*, with a well-vegetated verge below. A little further along the road, this same hedge tops a low wall of sandstone blocks. Most records of *S. cambricum* are from this latter section, especially near the junction with Hafod Road.

In 2025, the site was very droughted with lots of bare soil (thanks to the thin soils beside the hedge), but still held a very rich ruderal flora including frequent *Sonchus oleraceus*, *Atriplex patula*, *Cochlearia danica* and *Anisantha sterilis* along with *Senecio vulgare*, *Festuca rubra*, *Galium aparine*, *Lapsana communis*, *Cirsium vulgare* and *C. arvense*, *Vicia sativa*, *Jacobaea vulgaris*, *Artemisia vulgaris*, *Alliaria petiolata*, *Rubus fruticosus*, *Holcus*

lanata, *Geranium dissectum* and *G. robertianum*, *Bromus hordeaceus* and *Chamaenerion angustifolium*. Notably, a few plants of *Senecio inaequidens* were also present. Two plants of a *Senecio*, about half-way down the road, could potentially have been *S. cambricum*, but since they had already died and dried out it was impossible to make a positive determination.

Google Images show the site to have been in good condition since 2009. There may be evidence of herbicide application in May 2018, but the browning vegetation might equally be the result of drought in that year. Running between two settlements, the path is well used so it might have been managed with herbicide in the past and this should be determined if possible. Also, the last record in 2002 mentions that the “verge had been cut”. This would suggest plants on the other side of the road, which is a broad-to-narrow grassy verge, some of which is a steep bank. Much of this was too dangerous to survey in 2025 due to the volume of traffic.

The potential for reintroduction is assessed as very high, as the ruderal flora is in excellent condition (with several *Senecio* species), the site is extensive (320 metres) and the habitat appears to be entirely suitable (the current ruderal flora would suggest no recent herbicide application). The last record was only 23 years ago (recent compared to other sites!) and the site has supported a large population in the past. Another section of verge down the road towards Wrexham (just beyond the Booker Wholesale warehouse at SJ325494) also looked very suitable as a reintroduction site, with a rich ruderal flora.

Figure 30. Rhostyllen site, showing rich ruderal flora on NW verge of A5152 including *Senecio vulgaris*, *S. inaequidens* and *Jacobaea vulgaris*.





Figure 31. Rhostyllen site, showing (left) steep grassy verge on opposite side of road (which may have supported plants in the past but no longer looks suitable), and (right) another potential site for reintroduction further down the road beyond the Booker Wholesale warehouse.



Site 13. Marford Quarry (Denbighshire)

No plants in 2025 – original record in error?

The record for this site was made by J. Smith in 2011, with the note “SJ358558. About 40 plants on the steep bank. to be confirmed”. Located within the NWWT Marford Quarry Reserve, it is very atypical habitat for *S. cambricum*, being a steep slope of limestone scree within the quarry. The vegetation was not the ruderal community associated with this species at all, instead being highly calcicole limestone scrub with *Betula*, *Ulmus*, *Quercus*, *Fraxinus*, *Rubus*, *Corylus*, *Ulex* and *Cotoneaster horizontalis*, along with *Hieraceum*, *Fragaria vesca*, *Centaurea nigra*, *Teucrium scorodonia*, *Pilosella officinalis*, *Brachypodium sylvaticum*, *Oenothera* sp., *Chamaenerion angustifolium* and *Erigeron acer*. No plants of any *Senecio* were seen.

Given the highly unusual habitat and distance from any urban setting, it is assumed this record is an error – either a misidentification (it could have been a rayed form of *Senecio vulgaris*, which is recorded from the Quarry), or a data entry error.

Figure 32. Marford Quarry site, which is extremely atypical for the species and a long way from habitation. The 2011 record could have been an identification or data entry error.



Site 14. Ffrith (Denbighshire)

No plants in 2025.

This was one of the classic sites for *S. cambrensis*, being where the species was first ever recorded, by Mr H.E. Green in 1948. It attracted attention for many years and seemed to thrive - in 1983, 942 plants were recorded “along both sides of the road”. By 1986, though, the population had declined to 25 plants, and the last record was in 1994 by Goronwy Wynne. Located just above the village of Ffrith, the site is a small rural road bordered by fields and woodland, with hedges and walls beside a narrow verge.

In 2025, the site looked in good condition, if perhaps a little enriched. The sunnier north verge has a hedge of *Crataegus monogyna* and the occasional *Acer pseudoplatanus*, above a narrow strip of detritus by the road. This supported lots of *Atriplex patula*, *Alliaria petiolata* and *Galium aparine*, along with *Taraxacum*, *Urtica dioica*, *Sonchus oleraceus* and *Rubus fruticosus*, as well as some *Elymus repens*, *Hedera helix*, *Scorzoneroideis autumnalis*, *Rosa canina* and *Mercurialis perennis*. The southern verge was more shaded and overgrown, dominated by *Elymus repens*, *Alliaria petiolata* with *Taraxacum*, *Urtica dioica*, *Anthriscus sylvestris* and some *Geum urbanum*, *Heracleum sphondylium*, *Cirsium arvense*, *Rumex obtusifolius* and *Arctium minus*. Both sides of the road were searched from the edge of the village at SJ28585542 to the driveway to Cymau Hall at SJ29005533. No plants were found.

The potential for reintroduction is assessed as medium-low. As satisfying as it would be to reintroduce the species to the place it was first found, the habitat seems a little overgrown and eutrophic with dense vegetation of quite competitive species. There is little open ground and the ruderal flora is rather poor. The verges might have been enriched with run-off from the surrounding fields (one Google Earth image shows a dung heap in one spot on the other side of the hedge), and don't appear suitable for *S. cambricum* anymore. However, some Google Earth images show it to be a bit more open in other years (e.g. 2023) so if a reintroduction were to be attempted, some of the verge substrate should probably be removed first to expose less fertile soil.

Figure 33. Ffrith site, showing both verges of road (top) and the state of the dense vegetation on the north side (below left) and more shaded south side (below right).





Site 15. Alltami (Flintshire)

73 plants in 2024, 20 plants in 2025.

This is the largest surviving site for *S. cambrensis*, with the largest population of the five remaining sites in both 2024 and 2025. It was first recorded in 1986 when 40 plants were found “on wasteland”. By 2010, 247 plants were found growing at the site, but this dropped to 99 the following year and this decline seems to be continuing.

The site occupies a 450-metre stretch of the A494 from Pottery Cottages (SJ2807.6630) to opposite the entrance to Thorncliffe Building Supplies Ltd (SJ2764.6624). In 2024 & 2025, plants were found on the northern side of the road, growing on thin soil between the pavement and either walls and wooden fences (around Pottery Cottages) or backing onto hedgerows and woodland. These are mainly *Crataegus monogyna* but with occasional *Quercus robur*, *Q. cerris*, *Corylus avellana*, *Hedra helix*, *Rubus fruticosus* and *Rosa*. The soil is very thin and droughted, which keeps it open, and supports a rich ruderal community with *Sonchus oleraceus*, *Anisantha sterilis*, *Agrostis stolonifera*, *Taraxacum* as well as *Cochlearia danica*, *Urtica dioica*, *Torilis japonica*, *Plantago lanceolata*, *Atriplex prostrata*, and *Galium aparine*. Interestingly, plants of the rare *Lapsana communis* subsp. *intermedia* from southern Europe also occur on the verge.

In 2024, plants were found in three stretches: around Pottery Cottages (28 plants at SJ28064.66309 & SJ28055.66309 and up to SJ27943.66288), around the next house up the hill (7 plants from SJ27837.66267 to SJ27805.66267), and opposite the Industrial Estate with Thorncliffe Building Supplies (38 plants from SJ27720.66252 to SJ27635.66242). In 2025, 4 plants were found near Pottery Cottages, 15 around the next house up and one by the entrance to the building supplies. Older records (e.g. 2011) come from further along this road to the west, up to and beyond the junction with Pinfold Lane (e.g. outside the Flintshire County Depot offices), but none could be found here in 2024 or 2025.

The habitat is in good condition, with lots of open soil which is maintained by drought. In 2024 a representative from the North and Mid Wales Trunk Road Agent (NMWTRA) was parked near the verge and was very interested in the plant. NMWTRA maintain the verge with occasional cutting/strimming and were keen to learn the results of the survey and help conserve the plant. Around Pottery Cottages, plants were also spotted in the gravel of a garden, and one huge plant had even seeded into an old pot.

Figure 34. Location of *S. cambrensis* plants on the A494 at Alltami in 2024 (yellow lines) and 2025 (red dots). Pottery Cottages are on the right and the entrance to the Thorncliffe Building Supplies on the left.

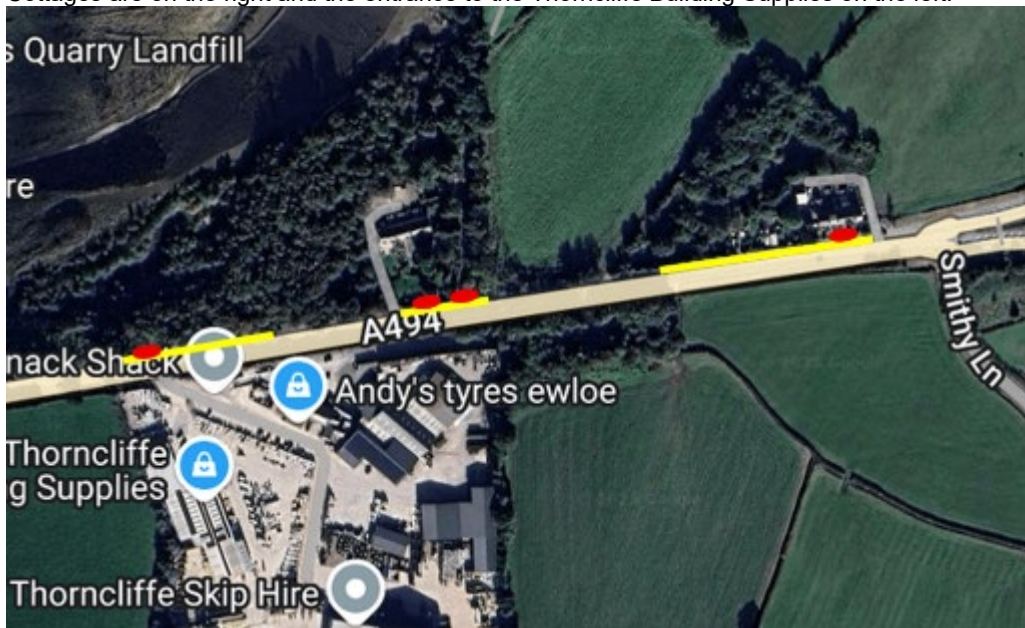


Figure 35. Alltami site. Plants outside Pottery Cottages (left) and on verge opposite Thorncliffe Building Supplies (right).





Figure 36. Alltami site. Large plants on verge in 2025 (left) and seeded into pot in garden of Pottery Cottages (right).





Two other sites have been found on or near other stretches of this road, likely the remnants of a larger meta-population in this area:

- About one mile to the SW on the same road (A494), plants were found by Lucy Boyett on a stretch of road between the villages of Alltami and New Brighton (SJ26.65, around Littlewood Cottages). There were 9 plants in 2010 and 30 in 2011, all on the N side of the road. This site was searched in 2024 but, unfortunately, the verge had been strimmed less than 30 minutes beforehand (the workmen were just leaving the site!) and no plants were found, despite searching the wilting vegetation. This site was not surveyed in 2025 and should be a priority for re-survey in 2026.
- To the east at Ewloe Green (SJ2915.6647), two plants were found in 2017 by Jonathan Shanklin on the junction of Green Lane with Mold Road (B5127). The site is still in OK condition with a limited ruderal flora, but no plants were seen in 2024 or 2025.

Figure 37. Site at New Brighton in 2024 that had been strimmed just before survey (left), and site at Ewloe Green in 2024 with rather sparse ruderal vegetation (right).



Site 16. Llanfynydd (Flintshire)

No plants in 2025.

This site, on the same road about one mile east of the site at Ffrith (Site 14) was first recorded in 1975 by Goronwy Wynne; he was also the last person to record it here, in 1994. It was at its best in 1982, when 109 plants were found by Henry Noltie “on edge of tarmac pavement”. The site, centred around Coed Issa Farm, is a rural road (B5101)

surrounded by fields and, in one place, the wall and entrance driveway of the farm. Plants have also been recorded in the village itself, opposite the school (now closed).

Today, the site is still in good condition, with well-developed ruderal habitat on some stretches of pavement, especially on the sunny SW verge. Other sections on the NW side, though, are quite densely vegetated and suffering from a heavy thatch from a steep bank above, with a dense growth of *Elymus repens*, *Centranthus ruber* and *Jacobaea vulgaris*. Although very narrow, with a thin strip of vegetation between the pavement and the fence, the SW verge is in much better condition, with *Anisanthera sterilis*, *Sonchus oleraceus* and *S. asper*, *Hedera helix*, *Taraxacum*, *Jacobaea vulgaris*, *Senecio vulgaris*, *Bromus hordeaceus*, *Alliaria petiolata*, *Lapsana communis*, *Atriplex patula* and *Matricaria discoidea*. The road was searched from the cross-roads in the village centre (SJ27745685) down to the railway bridge at SJ28095627 and the house at SJ28295619, but no plants were found.

Google Earth images show that, although the strip of grass on the SW verge is very narrow, it does get repeatedly strimmed (e.g. June 2009 and May 2023). This will certainly have an impact, although since the vegetation is thin there isn't too much of a buildup of thatch.

The potential for reintroduction is assessed as medium, as there is still a good ruderal flora and a lot of suitable habitat, but strimming of the verge needs to stop before any reintroduction is attempted. There is another stretch of pavement closer to the village (around the dog-poo bin and 20mph sign) that might also be suitable as it has a good ruderal flora but seems not to be cut. There are also pockets of suitable habitat within the village.

Figure 38. Llanfynydd site, showing SW side of verge with narrow strip of grass below Coed Issa Farm (left) and more ruderal pavement habitat closer to village that might be suitable for reintroduction (right).





Site 17. Stansty Park (Denbighshire)

No plants in 2025.

This site is centred on Summerhill Road where it runs from Gwersyllt to Wrexham University alongside Stansty Park to the NW. Along this side of the road there is a tall wall with a narrow strip of ruderal vegetation along the base. It was here that *S. cambrensis* was first recorded in 1982, when 163 plants were found, but the site was at its best the following year, when the population numbered 419 plants. It was last recorded in 2002 when just 5 plants were found.

Today, the site is still open and in good condition with a good ruderal flora along the base of the wall, although it might be a little enriched. Species included abundant *Atriplex patula*, *Hordeum murinum*, *Sonchus oleraceus* and *Taraxacum*, along with *Cirsium arvense*, *Cochlearia danica*, *Elymus repens*, *Persicaria maculata*, *Polygonum aviculare*, *Artemisia vulgaris*, *Dactylis glomerata*, *Lolium perenne*, *Rumex obtusifolius*, *Alliaria petiolata*, *Epilobium hirsutum*, *Plantago major*, *Rubus fruticosus*, *Fraxinus excelsior* and *Acer pseudoplatanus*. There is another old possible record further along the road to the NW (SJ315525) but this site was now found to be a garden wall/fence with just a few plants of *Epilobium hirsutum*, *E. obscurum*, *E. montanum*, *Sonchus oleraceus*, *Lysimachia (Anagallis) arvensis*, *Taraxacum* and *Urtica dioica*. The road was searched from the junction with Poolmouth Road (SJ3148.5254) to the junction with Highfield Road (SJ3180.5203), as well as parts of Griffiths Road and Glascoed Way, but no plants were

found. There is no pavement along most of Summerfield Road, and it's busy with traffic, so it's not the easiest site to survey.

The potential for reintroduction is assessed as medium, as although there is quite a lot of ruderal habitat available, and lots of open soil, the site it does appear to be quite enriched. No other *Senecio* species were present.

Figure 39. Stansty Park site, showing Summerhill Road and the narrow strip of ruderal vegetation between the road and wall.



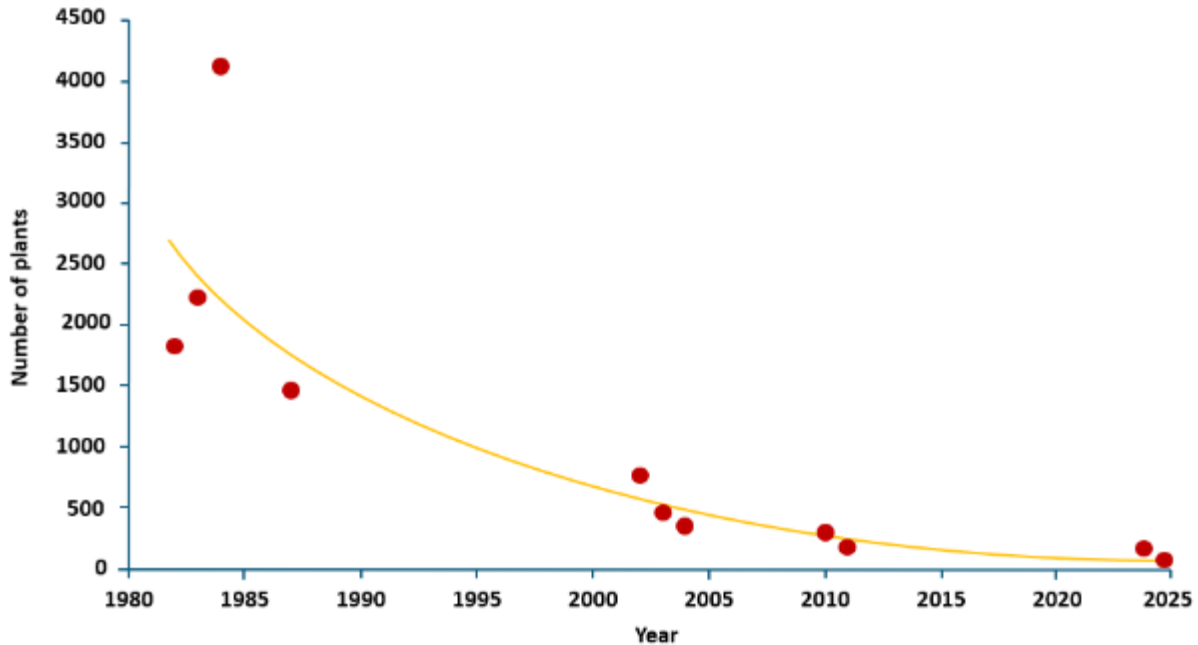


Discussion

The results of this survey show that *S. cambrensis* remains in a very perilous situation, with **only 52 plants seen in 2025**. The species is now **only found at five sites in three areas**: around Chirk (three sites), between Ewloe and Mold (one site), and Llanddulas (one site) on the north Wales coast. It can be confirmed that the species is now absent from its former sites in the Wrexham area, once the stronghold for the species, although it might conceivably still survive in an area that has not been surveyed.

Combining survey data from 2024 and 2025, it is possible to update the historic population graph. Despite the considerable fluctuations in numbers of plants from year to year, especially in the early 1980s when large numbers of plants appeared at some sites, the ongoing decline of the species is apparent (see Figure 40) and, in fact, it's rather surprising that the species has not been lost already.

Figure 40. Total site counts and overall trend in the *S. cambricum* population, using data presented by Boyett (2011) updated with counts from 2024 & 2025.



As with other ruderal species, the number of plants at sites varies considerably from year to year, depending largely on weather conditions and the availability of microsites. Drought during the germination period in spring can be particularly damaging, as was the case in 2025. This variability makes trends difficult to detect, but the Table 3 (below) shows the numbers of plants at each remaining site in 2010 & 2011 (after Boyett, 2011) and in 2024 & 2025. Although the Chirk and Llanddulas sites appear to be largely stable, the Alltami site seems to be suffering a genuine decline, with a loss of plants particularly from the western end of the site. The Pentre and Bryn-yr-Eos sites are also fairing badly and are very small and vulnerable. With only 52 plants seen in 2025 (the smallest global population ever recorded), it is critical that all these sites are monitored each year; the New Brighton site must be looked at in 2026 to see if the population is still extant.

Table 3. Numbers of plants at remaining sites from surveys in 2010 & 2011 by Lucy Boyett (2011) and in 2024 & 2025 by Trevor Dines.

Area	Site	2010	2011	2024	2025
Chirk	Chirk (site 5)	2	17	30	13
Chirk	Pentre (site 6)	16	3	8	1
Chirk	Bryn-yr-Eos (site 4)	11	0	9	1
Alltami	Alltami (site 15)	251	99	73	20
Alltami	New Brighton (see site 15)	9	30	(strimmed)	(not surveyed)
Llanddulas	Llanddulas (site 1)	0	19	36	17
Totals	All sites	289	168	156	52

Given the declining number of plants at extant sites, the classification of the species as Critically Endangered (Stroh *et al.* 2025) is not just supported but strengthened. Although

plants still survive at the five sites where they were last seen in 2010/2011, the species does appear to be facing an even greater risk of imminent extinction.

It's important to consider what might be driving this decline. It's almost certain that several factors have played their part and, indeed, come together in various ways to cause individual site losses. There is therefore no single cause or solution. These causes are likely to include, in order of importance:

- Repeated use of herbicide, particularly glyphosate
- Repeated strimming of roadside verges in spring and summer
- Renovation and replacement of boundary features
- Redevelopment of waste-ground, driveways and parking areas and reduced opportunities from new areas of newly created disturbed ground
- Increase in frequency of spring droughts
- Eutrophication from NO_x deposition from vehicle exhausts and run-off from fields
- Use of road salt in winter, encouraging more halophytic communities
- Disease, such as the rust *Puccinia lagenophorae* that has been recorded on plants at Chirk
- Ignorance around the presence of the species and its global importance, resulting in detrimental management of sites.

Some of these will be easier to tackle than others; the use of herbicide and strimming can be address through liaison with landowners and land managers, but reducing the impacts of spring droughts and NO_x deposition will be challenging. Many of the old sites surveyed did show signs of eutrophication, and this factor might be playing a greater role in the decline of the species than previously thought by closing the vegetation (with more abundant competitive species) and reducing the availability of bare soil micro-niches for germination. Strimming and herbiciding are also certainly taking their toll. As well as killing plants before they can set seed, strimming creates a thick thatch of vegetation on verges through which seedlings cannot germinate. And, of course, herbicide will have a direct and immediate impact on populations.

It's worth noting that genetic isolation doesn't appear to be driving the species' decline. Abbott *et al.* (2007) found very high levels of genetic diversity, "*with each individual screened possessing a unique multilocus phenotype*". They suggested that "*a lack of population structure and possibly high levels of gene flow via seed dispersal in what is predominantly a selfing species*" has not contributed to the sharp decline of the species since the 1980s. This finding does, however, have implications for any reintroduction programme, which should probably seek to maximise diversity by mixing plants from different surviving populations.

Ignorance of the species and its importance is also playing an important role. The Councillors at Chirk were entirely unaware of the plant outside their offices and were keen to help it when they learnt what it was and why it was so important. It is quite likely that most landowners are entirely unaware of the plant on their properties. The fact that the species is endemic and unique to Wales should give it a certain kudos, something to cherish and celebrate rather than eradicate. It is *Welsh* Goundsel, after all!

Action plan

From the results of this survey, this is clearly a species that requires urgent action on the ground. This Action Plan sets out the main work that has to be undertaken to secure the future of *Senecio cambrensis*. There are three main elements, which cover the five-year period from 2026-2031:

1. **MONITORING: Ensure that all extant sites are monitored every year** to build up a picture of annual population fluctuations and monitor the risk of imminent extinction, and also revisit some historic sites that appear to still be in good condition (as well as surrounding areas) to see whether any plants reappear.
2. **MANAGEMENT: Ensure appropriate management of all extant sites**, liaising with landowners and land managers to identify work that will help bring sites into favourable condition (see below). Critically, any management work should include both places where the plant is growing now, and areas of surrounding habitat that could be suitable for colonisation. Priority should be given to sites needing urgent management work (e.g. clearing *Clematis vitalba* at Llanddulas) and urgent changes to management, such as cessation of herbicide application (e.g. Chirk) and cessation of strimming (e.g. New Brighton, dependent on additional survey).

Favourable condition of any site supporting *S. cambrensis* can be characterised as having the following **conservation objectives**:

- a) Bare ground is >40% cover in the germination period January-April.
- b) Plants are healthy throughout their lifecycle, i.e. not subject to herbicide use.
- c) Any mowing or strimming should be limited to after August when plants have had a chance to produce seed.
- d) Woody species (including trees, shrubs and climbers) should be <30% cover).
- e) The key character and structure of the site should not change if it is favourable for *S. cambrensis*.

The rationale behind these objectives are:

Bare ground >40% cover at germination period: *Senecio cambrensis* needs open ground for germination in late winter/ spring (January to April). The seedlings should not be subject to high levels competition from other plant species, especially perennials and woody plants. Bare soil can be created naturally through factors such as summer drought and low soil fertility, but also through soil disturbance.

Herbicide use: *C. cambrensis* is very susceptible to the use of herbicides during the growing season, which kills plants rapidly and prevents seed production, impacting the next generation. Care should be taken as herbicides often drift and can kill plants some distance from the original target areas.

Mowing: any mowing or strimming during growing flowering period would be deleterious, killing plants and preventing seeding. However, mowing or strimming of

sites (and removal of arisings/grass-clippings) after most seeding has occurred is beneficial and should be encouraged, as this helps maintain open sites with patches of bare soil.

Woody species: the presence of woody species suggests the site is receiving low levels of management, which impacts the open/bare ground needed for germination. Woody species include invasive trees and shrubs (such as Ash, Sycamore and Bramble) and woody climbers (such as Clematis/Traveller's-joy) which can quickly smother sites. *S. cambrensis* often grows on verges between the pavement and hedgerows and in such cases the hedge should be trimmed annually and maintained at its original height and width to reduce shading.

Key character / structure: any fundamental changes to already favourable locations could damage sites where *Senecio cambrensis* is found and should be avoided. Such changes include hedges being removed and replaced with walls, verges being reseeded, driveways being tarmacked over, areas of waste ground being built upon and sites destroyed by new developments.

- 3. REINTRODUCTION / INTRODUCTION: Aim to re-establish plants at 4-6 sites** through reintroduction of seed from extant sites. These locations could either be historical sites where the plant is known to have occurred (if they are deemed to still be suitable from the assessment above) or other new areas of habitat that provide suitable conditions. The latter should be identified through discussion with councils, the trunk road agency or other landowners, and could include 'refuge' sites such as gardens, allotments and urban fallow such as waste ground and brownfield sites (i.e. not typical road verge and pavement sites) where plants are encouraged to grow to provide 'back-up' populations should the species become extinct at existing sites.

It is possible that because current populations are so small (compared to the 1980s), not enough seeds are being shed into the environment to colonise new patches of ruderal micro-habitat that become available. The aim is therefore to build up populations at existing sites, re-establish plants at a handful of lost sites, and establish new populations at other suitable sites so that enough seeds are being produced to naturally colonise new sites, while being mindful that this is a stochastic, ruderal species whose populations naturally shift around over time and whose numbers vary enormously from year to year depending on weather conditions.

Key to securing and increasing populations in the short-term will be bringing more habitat into favourable condition (especially by halting the use of herbicide and vegetation strimming and possibly by creating patches of open soil at sites through vegetation clearance) to maximize opportunities for colonization. Careful monitoring will be required to determine the success of these actions and establish whether the species is indeed in a position to naturally colonise favourable habitat, or whether other factors (such as nitrogen enrichment from vehicle exhausts) are playing more of a significant role than currently appreciated. If this latter is the case, other management options might need to be considered, such as stripping top-soil on verges.

Action plan 2026-2031

Timeline	Action	Details
Short-term 2026	Monitoring	<ul style="list-style-type: none"> Monitor all known sites, including New Brighton. Revisit 3-5 sites that might still support plants (e.g. Southsea, Rhostyllen, Ruabon).
Short-term 2026	Management	<ul style="list-style-type: none"> Work with MNWTRA to identify and rectify management issues at Alltami (A494 – hedge cutting, strimming and litter removal) and Bryn-yr-Eos (A5 - hedge cutting and strimming). Establish who is responsible for Llanddulas site (A547) and work with them to control invasive Clematis and other shrubby species. Work with Chirk Town Council to address management issues of Chirk sites, including herbicide application, strimming/mowing of verges and hedge cutting. Specifically, secure future management of boundary in front of Council offices so it isn't replaced with a wall, weeded by hand or sprayed, but continues to provide one of the best remaining sites for the species.
Short-term 2026	Reintroduction / introduction	<ul style="list-style-type: none"> Seek funding and permissions for re-/introduction work. Agree target sites for re-/introduction (see list below). Establish relationships with owners of re-/introduction sites. Identify any management work that might be needed. Establish sources of seed in seed banks and in cultivation, and collect more seed from any wild populations that aren't represented. Sow seed in cultivation to bulk up material available for re-/introduction.
Medium-term 2027-28	Monitoring	<ul style="list-style-type: none"> Monitor all extant sites annually. Revisit a sample of old sites in case species reappears.
Medium-term 2027-28	Management	<ul style="list-style-type: none"> Continue to work with MNWTRA to improve management of sites at Alltami (A494) and Bryn-yr-Eos (A5). Continue to work with owners of Llanddulas site to improve management. Continue to work with Chirk Town Council to improve management of Chirk sites.
Medium-term 2027-28	Reintroduction / introduction	<ul style="list-style-type: none"> Survey reintroduction sites to check condition prior to reintroduction work. Undertake any restorative management work needed. Undertake reintroduction of species to 2 sites. Monitor reintroduction sites carefully to assess their performance.
Long-term 2029-31	Monitoring	<ul style="list-style-type: none"> Monitor all known sites annually. Establish network of volunteers (e.g. Denbs Flora Group) to help monitor sites.
Long-term 2029-31	Management	<ul style="list-style-type: none"> Continue liaison with MNWTRA to ensure ongoing management of sites at Alltami (A494) and Pentre & Bryn-yr-Eos (A5). Continue liaison with owners of Llanddulas site to improve management. Continue liaison with Chirk Town Council to improve management of Chirk sites. Ensure management of reintroduction sites is appropriate.
Long-term 2029-31	Reintroduction / introduction	<ul style="list-style-type: none"> Survey reintroduction sites to check condition prior to reintroduction work. Undertake any restorative management work needed. Undertake reintroduction of species to 2-3 additional sites. Monitor reintroduction sites carefully to assess their performance.

Reintroduction should focus on re-establishing the species in and around Wrexham, the main area from which it has been lost. From the results of this survey, the most promising sites for reintroduction (if landowner permission can be secured) are shown in Table 4 below, with the top six sites prioritized for initial attempts: sites 12, 3, 7, 8, 16 and 2.

Table 4. Potential sites for reintroduction, based on quality of habitat, extent of habitat, years since last record and size of longevity of previous populations. Sites in bold rated very high, high and medium should be prioritised (Stansty Park not included here due to safety issues over traffic).

Site number (above)	Site name	Potential for reintroduction
12	Rhostyllen	Very high
3	Brymbo	High
7	Ruabon	High
8	Southsea	High
16	Llanfynydd	Medium
2	Minera (village)	Medium
17	Stansty Park	Medium
11	Gwersyllt	Medium-low
14	Ffrith	Medium-low

Note that although six sites have been selected above, other sites for introduction or reintroduction may come to light depending on opportunities that arise and relationships with landowners. The old site at Mochdre, for example, has long been suggested for reintroduction and, although the exact spot where the plant was last seen was destroyed by the building of an industrial estate, there is still some suitable habitat in the area. Other locations with suitable habitat within the vicinity of historical records should also be considered. These locations for introduction should also include sites away from the typical road verge/pavement habitat to which the plant is currently restricted. There's no reason why 'refuge' populations cannot be established in gardens, allotments and patches of urban fallow (waste ground and brownfield sites) where plants can be encouraged to grow alongside the existing ruderal flora.

In all cases, the selection of sites will depend on establishing relationships with the landowners and securing long-term management. In many cases, this will involve stopping the use of herbicides and strimmers, and maybe creating suitable pockets or patches of open soil within the existing vegetation. It will be critical, as always, to monitor the success (or otherwise) of the reintroductions and introductions over a period of years to inform future attempts at other sites, and it may be that several attempts will be necessary, as has been the case with the recent reintroduction of the closely-related York Ragwort *Senecio eboracensis* in York.

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Appendices

Appendix A: Identification

The following table of characteristics was used to identify *S. cambricum* in this survey and separate it from its parents, including rayed forms of *S. vulgaris*, and the similar hybrids *S. eboracensis* and *S. x baxteri*. Table is reproduced from Lowe & Abbott (2003).

TABLE 1. LIST OF MAIN DIAGNOSTIC FEATURES THAT DIFFERENTIATE *S. EBORACENSIS* FROM ITS PARENTAL TAXA, *S. VULGARIS* AND *S. SQUALIDUS*, AND OTHER CLOSELY RELATED TAXA (DATA FROM ALLEN 1967; STACE 1991; LOWE 1996; LOWE & ABBOTT 1996; LOWE & ABBOTT 2000)

Character	<i>S. eboracensis</i>	<i>S. squalidus</i>	<i>S. vulgaris</i> var. <i>vulgaris</i>	<i>S. vulgaris</i> var. <i>hibernicus</i>	<i>S. vulgaris</i> ssp. <i>denticulatus</i>	<i>S. cambricum</i>	<i>S. x baxteri</i>
Ray floret no. (length, mm)	8 (5-6)	12-15 (8-10)	0	7-13 (5)	7-13 (2-3)	8-15 (4-7)	8-13 (4-10)
Capitulum dimensions (mm)	10 x 4	10 x 5	10 x 3-5	10 x 3-5-4	11-13 x 3-5-4	11-13 x 4-5	10 x 2-3
Invulceral bracts no. (length mm)	4-8 (3.5-4)	4-8 (3)	10-12 (3)	10-12 (3)	10-12 (3)	10-12 (4-5)	variable 4-12 (3-4)
Number of leaf lobes	13-19	9-13	9-13	9-13	9-13	9-13	9-13
Leaf length (cm)	8-13	5-9	7-11	7-11	5-10	10-15	5-11
Leaf shape	dissected	highly dissected to almost entire	spatulate	spatulate	spatulate, very hairy	dissected	highly dissected
Achene length (mm)	2.5-3.5	2.0-2.5	2.0-2.5	2.0-2.5	2.5-3.5	2.5-3.5	usually sterile (2.0-2.5)
Pollen grain diameter (µm)	30-35	20-25	20-25	20-25	20-25	30-35	very variable (10-40)
Number of pollen pores	4	3	3	3	3	4	2-6
Stigmatic papillae	10-30	40-60	0	0	0	30-50	0-30
Chromosomes (ploidy)	2n = 40 (4x)	2n = 20 (2x)	2n = 40 (4x)	2n = 40 (4x)	2n = 40 (4x)	2n = 60 (6x)	2n = 30 (3x)
Life history	ephemeral	annual, short-lived perennial	ephemeral	ephemeral	annual	ephemeral	ephemeral
Ecology/habitat	ruderal	ruderal	ruderal	ruderal	sand dunes and sea cliffs	ruderal	ruderal
Location	York	throughout British Isles	throughout British Isles	British Isles, with <i>S. vulgaris</i>	western coast	North Wales and Edinburgh	British Isles (infrequently)
Frequency	small populations	large populations	large populations	inter-mixed with <i>S. vulgaris</i>	small populations	small populations	isolated individuals

Appendix B: List of all known sites

The following list of all known sites is taken from Boyett (2011) with additional sites and information from the BSBI Distribution Database (DDb). Thirty-four sites are listed along with information on when each one was last seen and the highest population recorded. Colour coding of the rows is as follows:

- Green: Extant sites with plants in 2024 and 2025,
- Orange: Searched in 2024 but no plants found,
- Yellow: Searched in 2025 but no plants found,
- White: Sites with pre-1987 records that have not been searched.

Site name	Colour code	Tetrad grid reference	First year seen	Last year seen	Years since last record	Max count (year)	Most recent count (year)	Comments
Llandudno Junction	White	SH7977	1979	1979	46	N/A	N/A	No counts (DDb)
Dolwyd	Orange	SH8177	1987	2000	25	326 (1987)	22 (2004)	Part of the 'Mochdre' site. No plants in 2024/25.

Site name	Colour code	Tetrad grid reference	First year seen	Last year seen	Years since last record	Max count (year)	Most recent count (year)	Comments
Mochdre	Orange	SH8279, SH8379	1966	2000	25	500 (1984)	1 (1987)	"Abundant" in 1993 (DDb). No plants found 2024/25, site modified and herbicided as usual
Mochdre (East)	Orange	SH8379	1966	1987	38	1 (1987)	1 (1987)	In Boyett as "Mochdre West" but is east of the village. No plants in 2024/25.
Llanddulas	Green	SH8878, SH8978	1984	2025	0	1500 (1984)	17 (2025)	Found in 2024 (38 plants) and 2025 (17 plants), but scrub encroachment over pavement (esp Clematis) an issue.
Minera (village)	Yellow	SJ2651, SJ2751	1953	1987	38	94 (1981)	6 (1987)	No plants found 2025, but quite a bit of suitable habitat.
Minera (quarry)	Yellow	SJ2551	1975	1987	38	7 (1987)	7 (1987)	No plants found 2025. Car park has been renovated recently.
Pentre (nr Minera)	White	SJ2651	1981	1981	44	2 (1981)	2 (1981)	An Arthur Chater record, on road verge.
Ffrith Farm	White	SJ2557	1953	1953	72	1 (1953)	1 (1953)	No comment
Brymbo	Yellow	SJ2953 SJ2954	1985	1987	38	32 (1983)	16 (1987)	No plants found 2025. Some suitable habitat around, incl Methodist Chapel car park.
Bryn-yr-Eos	Green	SJ2840	2004	2025	0	15 (2010)	1 (2025)	Found in 2024 (9 plants) and 2025 (1 plant). Site in good condition.
Chirk	Green	SJ2839 SJ2838, SJ2937, SJ2938	1980	2025	0	1000s (2002)	13 (2025)	Found in 2024 (30 plants) and 2025 (13 plants), one site threatened by rebuilding of wall, the other by overgrown conifer hedge
Pentre	Green	SJ2840	2002	2025	0	93 (2004)	1 (2025)	Found in 2024 (8 plants) and 2025 (1 plant), site in apparently good condition
Ruabon	Yellow	SJ2943	1982	2002	23	69 (1984)	2 (2002)	No plants found 2025. Site in good condition.
Southsea, Wrexham	Yellow	SJ2951 SJ3051	1982	1987	38	132 (1983)	40 (1987)	No plants found 2025. Site in very good condition.
Southsea (west)	White	SJ2951	1982	1984	41	900 (1984)	900 (1984)	Ingram & Noltie record on "mine spoil". Not sure where this is but it's not the road verge site near Southsea.
Pentre Broughton, Brynteg	Orange	SJ3052, SJ3053	1925	1987	38	167 (1982)	46 (1987)	Also a 2012 record unconfirmed. No plants found 2024 (Delyth Flora Group).
New Broughton	Yellow	SJ3051	2003	2003	22	21 (2003)	21 (2003)	Single record. "Frequent" (DDb)
Ffos-y-go	Yellow	SJ3054	1982	1987	38	40 (1982)	14 (1987)	No plants found 2025. Site now appears overgrown, with dense verge and shading from trees.
Gwersyllt	Yellow	SJ3153	1957	2010	15	145 (1982)	20 (2010)	No plants found 2025. Site on Summerhill Road in good condition.

Site name	Colour code	Tetrad grid reference	First year seen	Last year seen	Years since last record	Max count (year)	Most recent count (year)	Comments
Rhostyllen, Wrexham	Yellow	SJ3249 SJ3148	1982	2002	23	575 (1984)	13 (2002)	No comment
Wrexham	White	SJ3350, SJ3552	1968	1970	55	N/A	N/A	"Present" (DDb)
Marford Quarry	Yellow	SJ3555	2011	2011	14	40 (2011)	40 (2011)	Not found 2025. 2011 record "To be confirmed" (DDb). Rather unlikely habitat (scree)
Rhydymwyn	White	SJ2067	1975	1975	50	N/A	N/A	"Present" (DDb)
Ffrith	Yellow	SJ2855	SJ2855	1948	1994	942 (1983)	25 (1986)	
Northop Hall	White	SJ2666, SJ2767	1980	1980	45	N/A	N/A	"Present" (DDb)
New Brighton	Orange	SJ2665	2010	2011	14	39 (2004)	30 (2011)	No plants found 2024. Site strimmed about 30 mins before survey!
Alltami	Green	SJ2766, SJ2866	1986	2024	1	247 (2010)	73 (2025)	Refound 2024 (73 plants), also 2025 (20 plants). Site in good condition
Llanfynydd	Yellow	SJ2856	1975	1994	31	109 (1982)	4 (1987)	No comment
Stansty Park	Yellow	SJ3152	1982	2002	20	491 (1982)	5 (2002)	Not found 2025. Habitat in good condition.
Ewloe	Orange	SJ2966	2017	2017	8	2 (2017)	2 (2017)	No plants found 2024 (TD). Site in apparently in good condition.
Cymau	White	SJ2955, SJ2956	1975	1984	41	5 (1982)	3 (1984)	Roadside
Caergwre	White	SJ3057	1955	1955	70	N/A	N/A	"In quantity" (DDb)
Queensferry	White	SJ3168	1948	1949	76	N/A	N/A	"Present" (DDb)

Appendix C: List of records

List of records of *S. cambricum* made during the 2025 survey, including records of plants found as well as null records for sites where no plants were found.

Recorder	Site name	Vice county	Grid reference	Date	Count	Comments
T.D. Dines	Chirk, Town Council offices	50	SJ29051.38005	20/05/2025	1	At edge of pavement beside cut-down hedge in front of Council offices.
T.D. Dines	Chirk, Town Council offices	50	SJ29050.37997	20/05/2025	1	At edge of pavement beside cut-down hedge in front of Council offices.
T.D. Dines	Chirk, Town Council offices	50	SJ29049.37992	20/05/2025	1	At edge of pavement beside cut-down hedge in front of Council offices.
T.D. Dines	Chirk, Town Council offices	50	SJ29049.38002	20/05/2025	1	At edge of pavement beside cut-down hedge in front of Council offices.
T.D. Dines	Chirk, Town Council offices	50	SJ29049.38003	20/05/2025	2	At edge of pavement beside cut-down hedge in front of Council offices.
T.D. Dines	Chirk, Town Council offices	50	SJ29049.38009	20/05/2025	1	At edge of pavement beside cut-down hedge in front of Council offices.
T.D. Dines	Chirk, Crogen Road	50	SJ28964.38997	20/05/2025	1	Between pavement and Leylandii hedge

Recorder	Site name	Vice county	Grid reference	Date	Count	Comments
T.D. Dines	Chirk, Crogen Road	50	SJ28961.38998	20/05/2025	2	Between pavement and Leylandii hedge
T.D. Dines	Chirk, Crogen Road	50	SJ28958.38998	20/05/2025	1	Between pavement and Leylandii hedge
T.D. Dines	Chirk, Crogen Road	50	SJ28948.39002	20/05/2025	1	Between pavement and Leylandii hedge
T.D. Dines	Chirk, Wern Road	50	SJ28940.39020	20/05/2025	1	Between pavement and wall by lamp post
T.D. Dines	Bryn-yr-Eos	50	SJ28622.40136	20/05/2025	1	Small flowering plant on NE side of A5, by edge of pavement on wooded verge.
T.D. Dines	Pentre	50	SJ28555.40729	20/05/2025	1	Small plant on NW side of road, between pavement and hedge. Half-way between first two lamp posts after bend to bridge.
T.D. Dines	Alltami, Mold Road	51	SJ28044.66302	16/05/2025	1	On north side of A494 near Pottery Cottages
T.D. Dines	Alltami, Mold Road	51	SJ28042.66300	16/05/2025	1	On north side of A494 near Pottery Cottages
T.D. Dines	Alltami, Mold Road	51	SJ28043.66302	16/05/2025	2	On north side of A494 near Pottery Cottages
T.D. Dines	Alltami, Mold Road	51	SJ27967.66291	16/05/2025	1	On north side of A494
T.D. Dines	Alltami, Mold Road	51	SJ27957.66290	16/05/2025	1	On north side of A494
T.D. Dines	Alltami, Mold Road	51	SJ27941.66285	16/05/2025	1	On north side of A494
T.D. Dines	Alltami, Mold Road	51	SJ27940.66284	16/05/2025	1	On north side of A494
T.D. Dines	Alltami, Mold Road	51	SJ27939.66286	16/05/2025	2	On north side of A494
T.D. Dines	Alltami, Mold Road	51	SJ27716.66250	16/05/2025	6	On north side of A494, opposite Thorncliffe Building Supplies
T.D. Dines	Alltami, Mold Road	51	SJ27713.66249	16/05/2025	3	On north side of A494, opposite Thorncliffe Building Supplies
T.D. Dines	Alltami, Mold Road	51	SJ27623.66243	16/05/2025	1	On north side of A494, opposite Thorncliffe Building Supplies
T.D. Dines	Llanddulas	50	SH89340.78249	15/05/2025	2	On north side of A547, between pavement and hedge
T.D. Dines	Llanddulas	50	SH89353.78246	15/05/2025	1	On north side of A547, between pavement and hedge
T.D. Dines	Llanddulas	50	SH89358.78244	15/05/2025	2	On north side of A547, between pavement and hedge
T.D. Dines	Llanddulas	50	SH89367.78241	15/05/2025	1	On north side of A547, between pavement and hedge
T.D. Dines	Llanddulas	50	SH89303.78242	15/05/2025	1	On north side of A547, between pavement and hedge
T.D. Dines	Llanddulas	50	SH89307.78241	15/05/2025	2	On north side of A547, between pavement and hedge
T.D. Dines	Llanddulas	50	SH89312.78237	15/05/2025	3	On north side of A547, between pavement and hedge
T.D. Dines	Llanddulas	50	SH89331.78238	15/05/2025	1	On north side of A547, between pavement and hedge
T.D. Dines	Llanddulas	50	SH89338.78238	15/05/2025	1	On north side of A547, between pavement and hedge
T.D. Dines	Llanddulas	50	SH89339.78234	15/05/2025	1	On north side of A547, between pavement and hedge

Recorder	Site name	Vice county	Grid reference	Date	Count	Comments
T.D. Dines	Llanddulas	50	SH89353.78235	15/05/2025	1	On north side of A547, between pavement and hedge
T.D. Dines	Ewloe Green	51	SJ2915.6647	16/05/2025	0 (null)	Original site was at the junction of Green Lane with Mold Road (B5127). No plants found in 2025 (or 2024).
T.D. Dines	Marford Quarry	50	SJ358.558	26/06/2025	0 (null)	Original site is very unsuitable and unlikely habitat - a limestone scree slope. No plants found. Original 2011 record possibly in error.
T.D. Dines	Gwersyllt, Summerhill Road	50	SJ312.532	25/06/2025	0 (null)	Original site was on verges along Summerhill road. Habitat still apparently suitable but no plants found.
T.D. Dines	Gwersyllt, Prince of Wales Court	50	SJ3121.5357	25/06/2025	0 (null)	Original site was a hedge by a path to Heol Hyfryd - this now replaced by a fence. No plants found.
T.D. Dines	New Broughton	50	SJ307.514	16/06/2025	0 (null)	Original site was on the B5101 Southsea Road from SJ30785149 to SJ30845145. Site now looks too rank and overgrown. No plants found.
T.D. Dines	Ruabon	50	SJ290.439	24/06/2025	0 (null)	Original site on the edge of Plas Bennion Road. Site still looks suitable but no plants found.
T.D. Dines	Rhostyllen, Wrexham	50	SJ322.491	30/06/2025	0 (null)	Original site was the NW verge of the A5152, from SJ320490 to SJ323492. Site still in excellent condition, but no plants found.
T.D. Dines	Mochdre	50	SH820.780	15/05/2025	0 (null)	Original last site (around SH820.780 and SH821.780) now developed as entrance to industrial estate. No plants found (and not since 2009).
T.D. Dines	Llanfynydd	51	SJ280.564	12/06/2025	0 (null)	Original site (along B5101 from SJ280.564 to SJ282.562) still in OK condition (if maybe being trimmed in places). No plants found.
T.D. Dines	Ffrith	51	SJ288.553	12/06/2025	0 (null)	Original site (verges of road from SJ288.553 to SJ287.553) now looks a bit overgrown and maybe somewhat enriched. No plants found.
T.D. Dines	Minera (village)	50	SJ271.518	13/06/2025	0 (null)	Original site on Church Road in Minera village still in good condition, but no plants found.
T.D. Dines	Minera (quarry car park)	50	SJ258.519	13/06/2025	0 (null)	Original site (Minera quarry car park) now reworked (new surfaces, fencing, planting etc). No plants found.
T.D. Dines	Brymbo	50	SJ294.538	16/06/2025	0 (null)	Original site (car park of Methodist Chapel) still has good ruderal flora around the edge. No plants found.
T.D. Dines	Southsea, Wrexham	50	SJ300.517	16/06/2025	0 (null)	Original site on verge of B5430 (from SJ300.517 to SJ301.517 & SJ300516) still in excellent condition, but no plants found.
T.D. Dines	Ffos-y-go	50	SJ308.543	18/06/2025	0 (null)	Original site on verge of Top Road now looking shaded and overgrown. No plants found.
T.D. Dines	Stansty Park	50	SJ316.522	18/06/2025	0 (null)	Original site on verge of Summerhill Road still looks suitable habitat, but no plants found. Also no plants at SJ315.525 where one was seen in 1987.

Data Archive Appendix

No data outputs were produced as part of this project.

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