

the most species-rich plant families, such as daisies (Asteraceae) and orchids (Orchidaceae) are among the most underrepresented on the Global Red List.

It is difficult to summarise the diversity of plants found across Greater Gwent. For a relatively small area, there is a huge diversity of habitats (woodlands, meadows, uplands, wetlands) on a wide variety of soils, altitudes and aspects. Greater Gwent supports one of the oldest trees in Wales, the Mamhilad Yew (thought to be between 2,000 and 3,000 years old and with a girth over 35ft) and one of the rarest plants in Wales, the *Wolffia arrizoides*, which is found in the ditches of the Gwent Levels.

Gwent has two Important Plant Areas (IPAs). The Valley IPA, along the English border, is identified as a Site of Special Scientific Interest (SSSI). These diverse woodlands support populations of the native Betula pubescens.

NPMS is based on 1km squares, allocated on a random weighted basis to achieve representation of the different habitats across the UK. Uptake within the study area is very good (96%), with just one

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Arable Wildflowers

Protection: Wildlife & Countryside Act (1981, as amended)

Conservation Status: Various, see below

Data Availability: Poor (303 records)

Context: This suite of annual plants, which thrive on frequent disturbance, is the single most threatened element of the UK flora. These species are characteristic of arable fields and other cultivated ground, sharing the ecological niche of the crop plants among which they grow. Since they are so closely associated with traditional arable farming practices, their survival depends on suitable conditions being maintained on at least parts of some farms.

Many of these species are thought to be ancient introductions, brought to Britain with the first food crops by early farmers. More than 150 species of plant make up this group in Britain because the distribution of individual species depends on geology, soil type and climate, many of these may never have occurred in Gwent. A selection of relevant species is shown in the table below.

A combination of factors has led to the decline of arable wildflowers. The development of more efficient seed cleaning techniques may have been one of the first to have an effect, perhaps starting more than a century ago. Other reasons include the significantly increased use of fertiliser and herbicides, changes in type of crop (such as to maize and oilseed rape) and the use of modern crop varieties.

In the Flora of Monmouthshire, the use of herbicides on crops, has spelt the demise of many species of arable land in Monmouthshire, as elsewhere in the UK. The modern practice of autumn sowing, rather than spring sowing of cereal crops, has also contributed to the decline of these species.

Historically, many more livestock farms than today would have had at least a small area of arable land, and field margins would have been managed less intensively. Small arable fields are now rare, having either been enlarged by the removal of field boundaries or converted to pasture.

Common Name	Scientific Name	Red List 2005 ³	Wales Red List 2007 ⁶	Number of Greater Gwent records	Most recent record
Blue Pimpernel	Anagallis arvensis ssp foemina	LC		2	1987

Corn Chamomile	<i>Anthemis arvensis</i>	EN- (A2c)	EN	2	2010
Stinking Chamomile	<i>Anthemis cotula</i>	VU- (A2c)	VU	55	2019

Outlook: Past and current agri-environment schemes have included options which favour arable wildflowers by supporting cultivated field margins, unsprayed cereals and winter stubble. However, it appears that take-up of these options may not have been as great under Glastir than under its predecessor, Tir Gofal. The future prospects for some of these plants in Gwent will depend on the details of the Sustainable Farming Scheme, which is currently being designed.

Organic farming may be expected to provide some of the conditions that arable wildflowers need by avoiding the use of herbicides and artificial fertilisers.

Greater Gwent range Records held by SEWBRc of the 27 species listed in the table below are distributed across Gwent but with fewer from the west and north, reflecting the higher altitude and relative lack of arable farmland there.

However, from the third of the maps below, which shows the diversity of records, it can be seen that very few 1km squares (monads) have records of more than three of the species listed. The greatest concentration of such squares is in northern Gwent where winter stubbles can still be found, particularly in wet winters when cultivation is difficult.

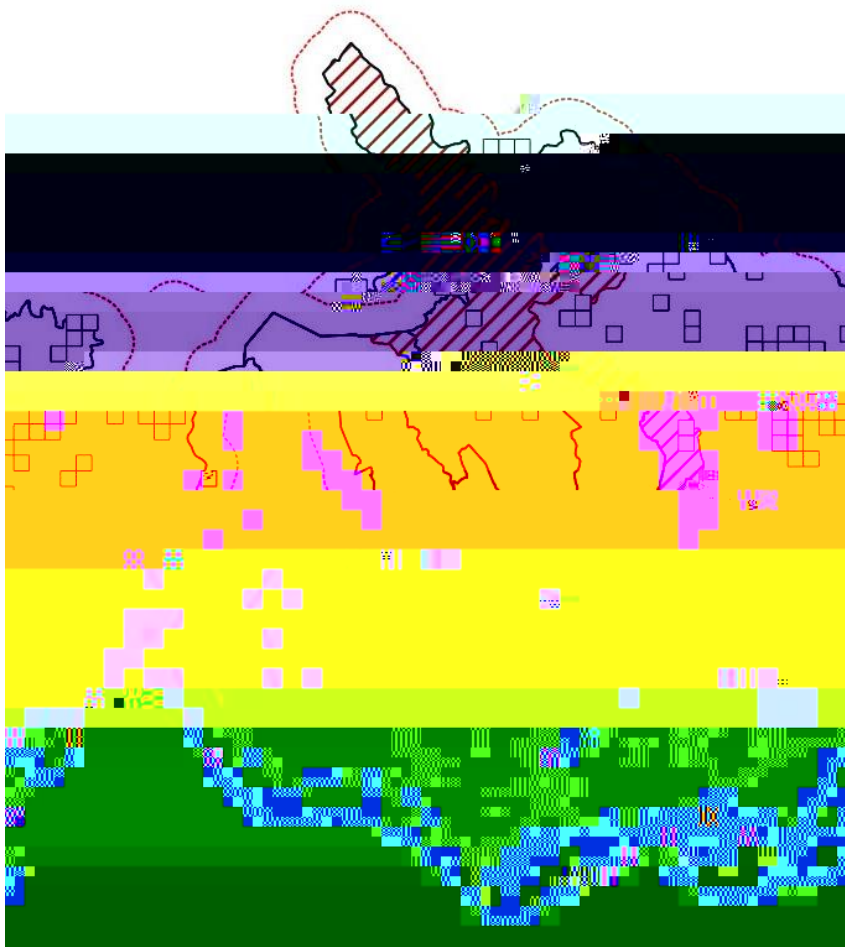
Evans, writing in the Flora of Monmouthshire, published in 2007, mentioned three sites that supported Field Woundwort and the two species of Fluellen: Kilpale near Caerwent, Llantrisant in the Usk Valley and some oat fields at Middle Hendre, west of Monmouth. (He also found other rare arable wildflowers in these oat fields.) Other locations where the SEWBRc records indicate clusters of species are Clytha Hill, Llangovan, Dingestow and Treowen. There are concentrations of older records at Llanbradach in the west of Gwent and Brockwells Meadow in the south.

The maps show an apparent hotspot on the Gloucestershire border, but this is in fact an error arising from older nonspecific records being attributed to the centre of squares. Records appearing to be from the Severn Estuary are the result of erroneous grid references.

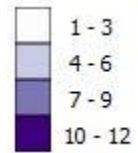
There is some doubt over the validity of a few records in the table: records for Red Nettles are unverified and some for Cornflower may be of cultivated origin.

Plantlife published a report in 2015¹² which identified Important Arable Plant Areas based on 2km squares (tetrads). This report drew on records from a variety of sources, including monitoring of arable wildflowers for Tir Gofal between 2009 and 2012. Monmouthshire county was found to have many tetrads with coincidences of three of the species selected in that report, and a few with five or six. These selected species, however, included Corn Spurge (*Spergula arvensis*) and Corn Mint (*Mentha arvensis*), species which are more common than those in the list above and so not included in it or in the maps presented here. Ten tetrads were considered to be of national importance.

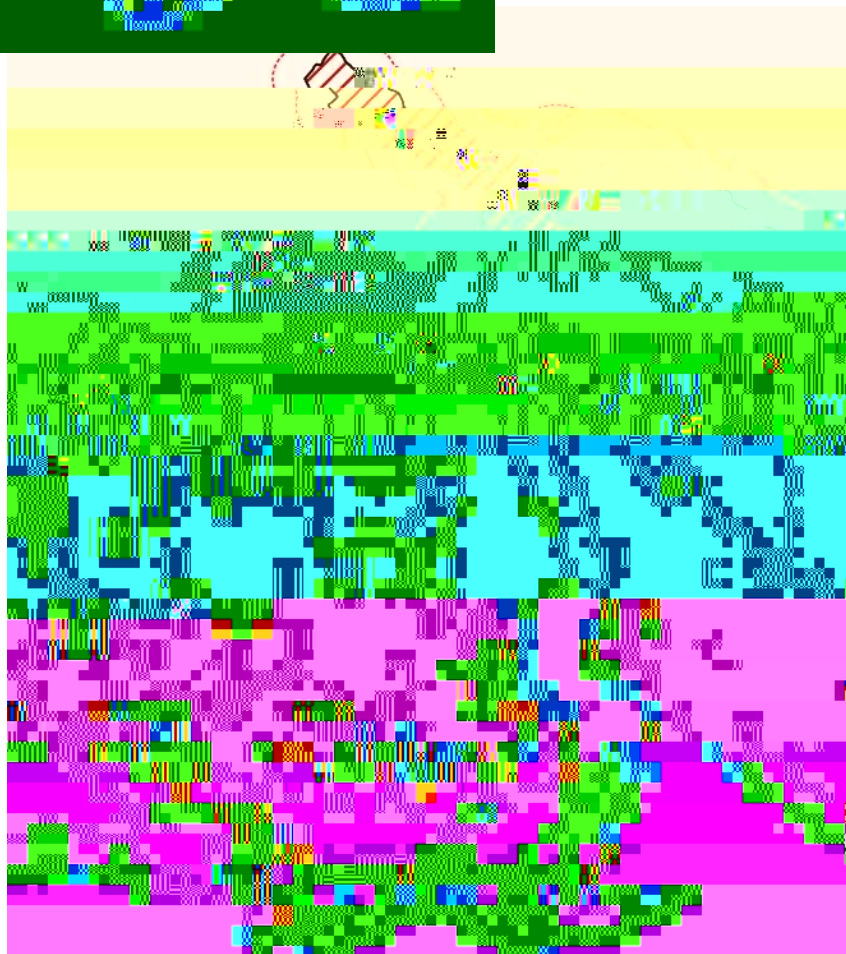
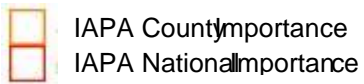
The strong message from the Plantlife report was that targeted searches would be worthwhile in Greater Gwent (but Monmouthshire county and the adjacent county of Glamorgan). Further surveys may be expected to reveal the presence of some arable wildflower species where they were recorded in the past and some new localities.



Diversity of arable wildflower records



Diversity of arable wildflower records with Important Arable Plant Areas²



GreenWinged Orchid *Anacamptis morio* (L.) (R.M. Bateman, Pridgeon & M.W. Chase)

Protection: Wildlife & Countryside Act (1981, as amended)

Conservation Status: NEAR THREATENED (UK)

Data Availability: Poor (162 records)

Context: The GreenWinged Orchid has a short spike bearing

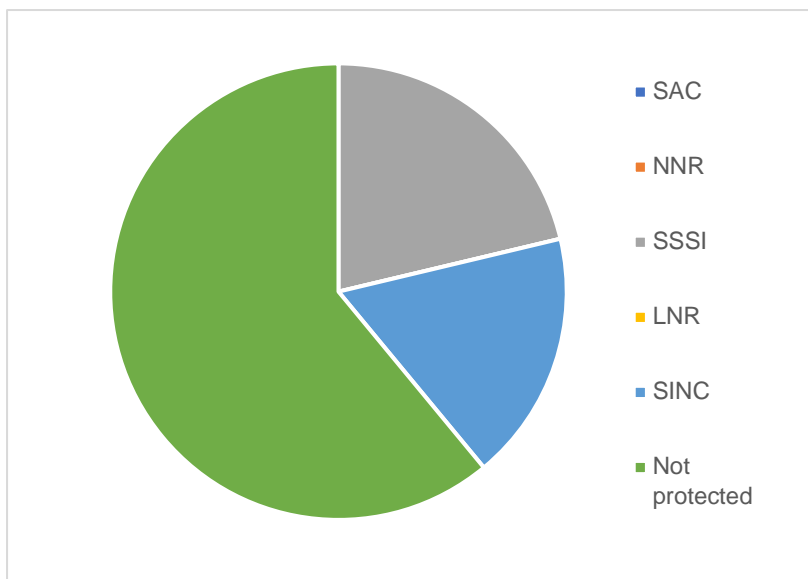
Population trends: There are encouraging signs that this orchid can become established, or re-established, in response to favourable management. Small numbers have been seen in fields undergoing restoration management close to sites which hold the largest populations, for example at New Grove Meadows Wildlife Trust Reserve.

Protection: Several Gwent populations occur within Sites of Special Scientific Interest: Brockwells Meadows; Dinham Meadows; Cobblers Plain Meadows, Devauden; Lower Meadows, Devauden and Pentwyn Farm Grasslands, Penarth.

New Grove Meadows Wildlife Trust Reserve is a Site of Importance for Nature Conservation as well as a Protected Site (SSSI and SINC) together account for 39% of records held by SEWBRcC.

In addition, GreenWinged Orchid is present at Trellech Wet Meadow, which is leased by the Monmouthshire Meadows Group. It also occurs in some of the privately owned meadows managed by members of the group.

GreenWinged Orchids records from protected sites



Lesser Butterfly Orchid *Platanthera bifolia* (L.) (Rich)

Protection: None

Conservation Status: Vulnerable (UK)¹³ Section 7 Priority (Wales)

Data Availability: Poor (18 records)

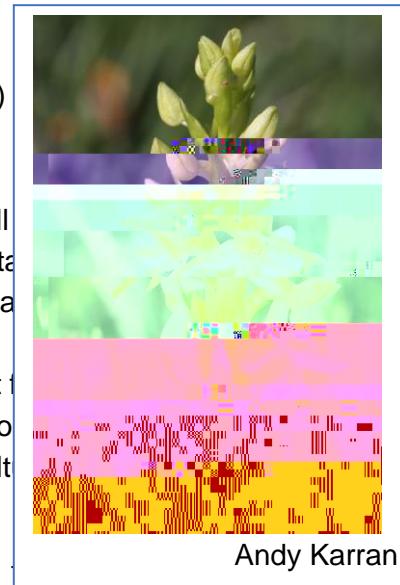
Context: Lesser Butterfly Orchid is a long-lived perennial with a tall spike of white flowers. It can be found in a wide range of habitats including woodland, heathland, grassland and even some wetlands such as mires and bogs. Despite this, there has been a long-term decline since the 1930s: Lesser Butterfly Orchid has been lost from about 75% its former range in England. Declines are thought to be related to habitat changes such as overshading, agricultural improvement and scrub encroachment.

Outlook: Currently the UK population is predicted to continue to decline.¹³ Evans

the Greater Gwent population is now confined to a single site^{5,10} and

Greater Gwent range Lesser Butterfly Orchids are currently only found at one site at Lardwick Plantation/Slade Wood; although there are records from the 1970s from within the Brecon Beacons National Park, and from the 1990s just over the border in Gloucestershire.

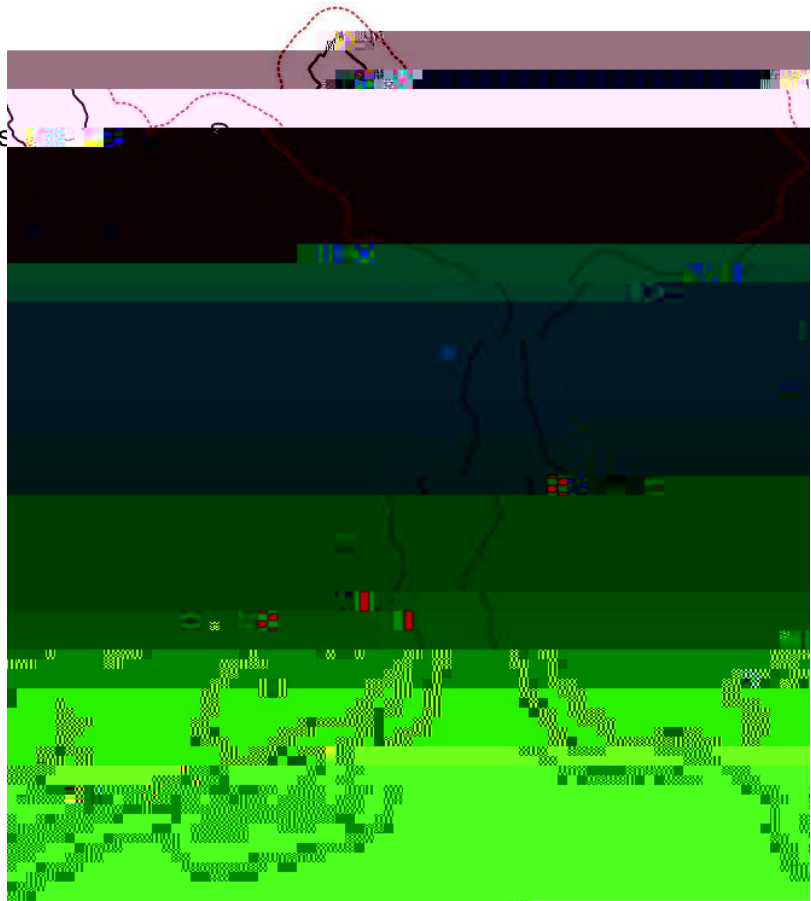
If historic records are considered, the population previously spread along the English border and across the southern part of Monmouthshire.



Lesser Butterfly Orchid records in Greater Gwent (maximum density 15 records/km²)



Lesser Butterfly Orchid records by decade, including historic records



Spreading Bellflower *Campanula patula* (L.)

Protection: None

Conservation Status: ENDANGERED (UK)
ENDANGERED (Wales) Section 7 Priority (Wales)

Data Availability: Poor (20 records)

Context: Spreading Bellflower is a biennial plant with purple-blue starshaped flowers. It can be found on

Population trends: If historic records (18 additional records dating back as far as 1850) are considered, as many as 19 monads have been occupied at some point, mostly along the English border. There are only ten monads with records after 1970, and just 1 record from the decade. Evans reports a

Despite the Lydart population once showing over 100 plants

References:

1. Antonelli A, Fry C, Smith RJ, Simmonds MSJ, Kersey PJ, Pritchard HW (eds.). 2020. State of the
t}œ o [• W o v š• v & μ v P] î î î X Z } Ç https://doi.org/10.31885/172 < Á X
2. Evans T. 2007. The Churchyard Yews of Gwent: <https://www.ancient-yew.org/mi.php/the-churchyard-yews-of-gwent/94>
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26. Dines T2007. A Vascular Plant Red Data List for Wales. Plantlife Wales.