

European Community Directive  
on the Conservation of Natural Habitats  
and of Wild Fauna and Flora  
(92/43/EEC)

**Second Report by the United Kingdom under  
Article 17  
on the implementation of the Directive  
from January 2001 to December 2006**

Conservation status assessment for :  
**S1654: *Gentianella anglica* - Early gentian**

Please note that this is a section of the report. For the complete report visit <http://www.jncc.gov.uk/article17>

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# S1654 *Gentianella anglica* Early gentian

*Audit trail compiled and edited by JNCC, the Plant Conservation Working Group and  
Plantlife International*

This document is an audit of the data and judgements on conservation status in the UK's report on the implementation of the Habitats Directive (January 2001 to December 2006) for this species. Superscript numbers accompanying the headings below, cross-reference to headings in the corresponding Annex B reporting form. This supporting information should be read in conjunction with the UK approach for species (see 'Assessing Conservation Status: UK Approach').

There remains uncertainty regarding whether this plant is a distinct species or simply a variant of the more widespread *Gentianella amarella* (Winfield & Parker, 2000). In the absence of consensus on this point, the remainder of this report provides data for the plant described as *Gentianella anglica*, and not for *G. amarella*. The conclusions reached would be substantially different if *G. amarella* populations were included.

## 1. Range Information<sup>2.3</sup>

This species (as currently described) is endemic to the UK, and is known in 17 English counties and one Welsh county. The main strongholds are the Isle of Wight, Wiltshire and Dorset, where it is locally plentiful (Preston *et al.*, 2002, Wilson, 1999).

### 1.1 Surface area of range<sup>2.3.1</sup> 12,342km<sup>2</sup>

The above estimate was calculated within Alpha Hull software, using extent of occurrence (clipped to inland areas) as a proxy measure for range (see Map 1.1 below). Alpha was set at 20 km to reflect the dispersal capability of this species. An introduced site was not included in the map or calculation.

### 1.2 Date of range determination<sup>2.3.2</sup> 1987 – 1999

The range estimate was calculated using records from Preston *et al.* (2002). The most recent recording date class is 1987-1999. Records from this time period provide the best representation of current range as it is understood by species specialists.

### 1.3 Quality of range data<sup>2.3.3</sup> Good

Preston *et al.* (2002) represents a complete survey of 10-km squares for the reported time period.

### 1.4 Range trend<sup>2.3.4</sup> & Range trend magnitude<sup>2.3.5</sup> Stable

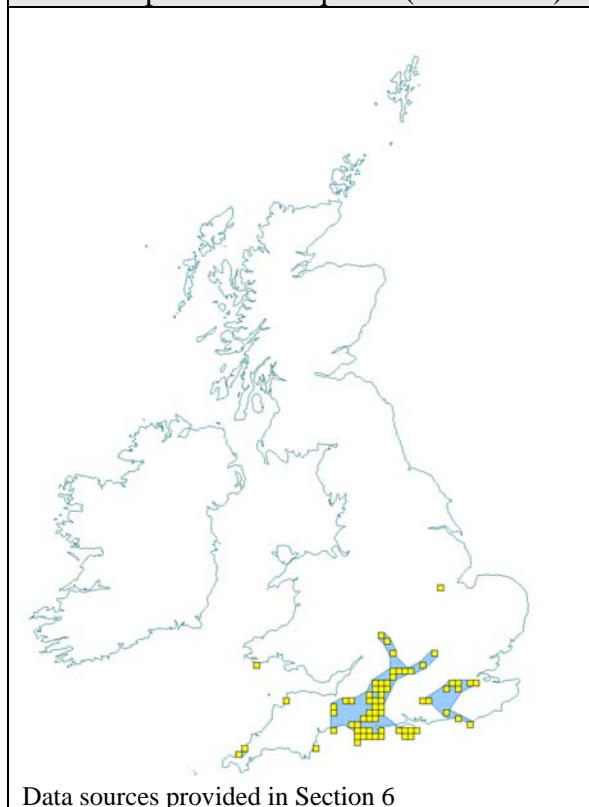
Since 1970, the range has been more or less stable (Stewart *et al.*, 1994). The core range of this species has undergone little change, although quality of habitat within this range may have declined. Population outliers have declined, particularly in East Anglia, Northamptonshire, Surrey, Kent and Bedfordshire. Some of these had declined/were lost several decades ago, others more recently.

## 1.5 Range trend period<sup>2.3.6</sup>

1970 – 1999

The most recent available comparison of range is in Stewart *et al.* (1994), which contains a map of the range recorded in 1970-1992. The current range estimate (1987-1999) includes the time at which the Directive came into force, it is not possible to provide trend information from 1994 to the present, however there is no reason to believe that the trend since 1970 has changed. Therefore, a conclusion of stable is believed to represent the current trend.

**Map 1.1** Current extent of occurrence and occupied 10-km squares (1987-1999)



## 1.6 Reasons for reported trend in range<sup>2.3.7</sup>

Not applicable

## 1.7 Favourable reference range<sup>2.7.1</sup>

12,342km<sup>2</sup> (Equal to current)

The decision tree in Note 1 has been used as a guide in determining the favourable reference range estimate (see 'Assessing Conservation Status: UK Approach').

The current trend is stable, and the range is not especially restricted, therefore the range as in 1994 (measured as 1987-1999) is set as the favourable reference range. Most of the decline of this species has been in the number and quality of the sites rather than in overall range. There has been some loss of outliers, but there is no particular reason to believe that the current range is not sufficient for the species.

## 1.8 Range conclusion<sup>2.8</sup>

Favourable

The assessment is Favourable since the range is stable and is equal to the favourable reference range.

## **2. Population of the species<sup>2.4</sup>**

### **2.1 Population estimate<sup>2.4.1</sup>**

#### **154 localities**

This species was reported as occurring in 154 localities in the 2005 UK Biodiversity Reporting Round. For this species, localities have been defined as sites bearing different names, without subsites. Therefore, for instance, 'Braunton Burrows' is counted as a single locality, despite there being separate populations (and possibly subsites) within it. Population sizes vary from year to year, fluctuating from one or two individuals to many tens of thousands (within its core areas of Dorset, Isle of Wight and south Wiltshire). This fluctuation makes the use of a proxy measure of population essential.

### **2.2 Date of population estimate<sup>2.4.2</sup>**

#### **1993-2005**

Population data were collated in 2005, but most localities were not surveyed that year. Surveys from 1993 onwards were included in the collation.

### **2.3 Method of population estimate<sup>2.4.3</sup>**

#### **3 = from comprehensive inventory**

Work to assess status of this species in the field began in 1993 finishing in 1999 (with a few additions later); population size estimates and site designation were recorded (Wilson 1999, 2000).

### **2.4 Quality of population data<sup>2.4.4</sup>**

#### **Good**

Although this species has been well surveyed, there is some taxonomic uncertainty of taxa, with initial studies suggesting it was not distinct from *G. amarella*. However, more recent work based on mycorrhizal, Scanning Electron Microscopy (SEM), and further molecular evidence, suggests that whilst close, they are separate species (Winfield & Parker, 2000; Plantlife *pers. comm.*).

### **2.5 Population trend<sup>2.4.5</sup> & Population trend magnitude<sup>2.4.6</sup>**

#### **-20%**

There are 38 sites listed in Wilson (1999) for which records exist between 1970 and 1992, but not since (this gives a decline of 20% over the period). Small and fragmented sites continue to be at high risk, and are occasionally lost, hence it is reasonable to report that the current trend is also decreasing, although the amplitude is unknown. Many localities have been lost as a result of quarrying or through the ploughing up or fertilising of chalk grassland for agriculture or by the invasion of coarse grasses or scrub. In more recent times decline in habitat quality has also had a significant impact on populations (Plantlife Species Briefing Sheet, 2006).

Based on the monitoring of a sample of sites, numbers of individuals in populations appear to have suffered a recent decline (Wilson, 1999). However, given the large fluctuations (between sites and annually), it is not possible to suggest magnitude of this decline with any degree of confidence.

## **2.6 Population trend period<sup>2.4.7</sup>**

### **1970 – 2005**

This is the most recent comparison possible as there is a site register for 1970 onwards, and all sites have been re-surveyed since 1993. However, sites have not been surveyed more than once since 1993, and hence more recent trends are unknown.

## **2.7 Reasons for reported trend in population<sup>2.4.8</sup>**

### **3. Direct human influence (restoration, deterioration, destruction)**

### **4. Indirect anthropo(zoo)genic influence**

### **5. Natural processes**

## **2.8 Justification of % thresholds for trends<sup>2.4.9</sup>**

Not applicable

## **2.9 Main pressures<sup>2.4.10</sup>**

### **141 Abandonment of pastoral systems**

### **101 Modification of cultivation practices**

### **971 competition**

## **2.10 Threats<sup>2.4.11</sup>**

### **101 Modification of cultivation practices**

## **2.11 Favourable reference population<sup>2.7.2</sup>**

### **154 (viable) localities**

The decision tree in Note 1 has been used as a guide in determining the favourable reference population estimate (see 'Assessing Conservation Status: UK Approach').

The favourable reference population needs to be set at a level which will at least maintain the range and population present at the time of the directive. Currently, a number of the sites contain very small populations, or are highly fragmented, and these are at high risk of loss. However, there is no particular need for there to be additional sites in order to maintain the range and population, simply that the current sites should contain viable populations.

## **2.12 Population conclusion<sup>2.8</sup>**

### **Unfavourable – Inadequate**

Although the current population is equal to the favourable reference population, the declining trend (which is not attributed to natural fluctuation) indicates that population structure may be deviating from the norm. An Unfavourable conclusion has therefore been triggered under Annex C, and because trend is less than 1% per annum, Unfavourable-Inadequate has been favoured over Unfavourable-Bad.

## **3. Habitat for the species in the Biogeographic region or sea<sup>2.5</sup>**

*G. anglica* is an annual plant, occurring in calcareous grassland, mainly on steep, south-facing slopes. It grows on bare ground or in thin turf that is kept open by a combination of rabbit or sheep-grazing and trampling by livestock on thin droughted soils. In dense turf it becomes shaded out and unable to compete with other more vigorous species. It is found on a variety of substrates and in different habitats, but is particularly frequent in coastal

grasslands. At most of its localities the vegetation is referable to 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*).

### **3.1 Surface area of habitat<sup>2.5.2</sup>**

**Unknown**

### **3.2 Date of estimation<sup>2.5.3</sup>**

**Not applicable**

### **3.3 Quality of data on habitat area<sup>2.5.4</sup>**

**Poor**

### **3.4 Habitat trend<sup>2.5.5</sup>**

**Decreasing**

Although we do not currently hold accurate data on the loss of suitable grassland, there is a body of evidence to suggest gradual deterioration of unimproved grassland. Although this cannot be quantified using existing data, observations suggest that habitat has declined in both area and quality. Populations have also been lost due to habitat fragmentation. For instance, Stewart *et al.* (1994) states: "Most fragments of surviving grasslands are unsuitable as the cessation of traditional grazing regimes has allowed rank grassland and scrub to replace the closely grazed swards required by this species. Populations within Sites of Special Scientific Interest (SSSIs) and nature reserves are still threatened because of the practical difficulties of grazing grassland fragments, cliff edges and coastal slopes. There is also a difficulty within fragmented sites in balancing the requirements of this species with other species worthy of conservation."

### **3.5 Habitat trend period<sup>2.5.6</sup>**

**1970 – 1999**

This is consistent with the trend period considered for range and population.

### **3.6 Reasons for reported trend in habitat<sup>2.5.7</sup>**

**3 = Direct human influence (restoration, deterioration, destruction)**

**4 = Indirect anthropo(zoo)genic influence**

**5 = Natural processes**

The key reason for the decline is lack of management of grassland sites, predominantly where a lack of grazing has resulted in the formation of dense swards of grassland, often invaded by scrub, which cannot support *G. anglica*. In addition to this some sites have been destroyed through quarrying and as a result of ploughing and fertilising.

### **3.7 Suitable habitat for the species (in km<sup>2</sup>)<sup>2.7.3</sup>**

**Unknown**

### **3.8 Habitat conclusion<sup>2.8</sup>**

**Unfavourable – Inadequate**

Although current habitat cannot be quantified, habitat is known to have suffered decline. Furthermore, Common Standards Monitoring assessments indicate a large part of *Festuco-Brometalia* is in unfavourable condition. Nutrient enrichment and inappropriate grazing levels are important factors leading to such an assessment. The assessment is therefore Unfavourable – Inadequate.

## 4. Future Prospects<sup>2.6</sup>

### Poor prospects

*G. anglica* is the subject of a Species Action Plan under the UK Biodiversity Action Plan. (It is also included on the revised UKBAP list.)

The future of this species is inextricably linked with the future of good quality unimproved grassland in the UK, particularly those habitats which are traditionally managed by grazing. At present it appears that the core areas for the species are relatively secure, but the fact that a large proportion of sites are deemed to be in unfavourable condition gives an indication of a generally poor habitat quality, which if unchecked will result in a gradual diminution of population sizes. In addition to this there are potentially grave threats of changing agriculture and climate change, of which the potential impacts are unknown.

### 4.1 Future prospects conclusion<sup>2.8</sup>

#### Unfavourable – Inadequate

The pressures and threats that this species faces appear significant, and its long-term future is not secure. Therefore, it is reported as Unfavourable – Inadequate.

## 5. Overall Conclusion<sup>2.8</sup>

### Unfavourable – Inadequate

Population, habitat and future prospects are all reported as Unfavourable – Inadequate, with range Favourable. Therefore, overall the judgement is Unfavourable – Inadequate.

**Table 5.1.** Summary of conclusions

Parameter	Judgement	Grounds for Judgement (in accordance with Annex C)	Reliability*
Range	Favourable	Stable (loss and expansion in balance) and not smaller than the 'favourable reference range'	1
Population	Unfavourable – Inadequate	Any other combination  Population declines (of less than 1% per annum) indicate that population structure is deviating from norm	1
Habitat	Unfavourable – Inadequate	Any other combination  Area of habitat is not sufficiently connected to ensure the long term survival of the species  Habitat quality is poor	2
Future Prospects	Unfavourable – Inadequate	Any other combination  Pressures and threats to the species significant; poor prospects for its future	2
Overall Assessment	Unfavourable – Inadequate	One or more Unfavourable – Inadequate but no Unfavourable – Bad	1

\*1=High, 2=Moderate, 3=Low

High – Expert opinion is that the concluding judgement accurately reflects the current situation based on a professional understanding of the species. For range, population, and habitat, quality of data used to establish the current estimate has been identified as “good”; data used to inform trends is comprehensive and up to date.

Moderate – A greater understanding of the feature, or the factors affecting it, is required before a confident concluding judgement can be made by experts. For range, population, and habitat, the current estimate and/or trend are based on recent, but incomplete or limited survey data; or alternately, a comprehensive, but outdated (pre-1994) review.

Low – Judgements, and comprising estimates, are based predominately on expert opinion.

N/A – Assessment conclusion is “unknown”, on the basis of insufficient reliable information

## 6. References

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### Map Data Source

Vascular Plant Database, Botanical Society of the British Isles, via the Biological Records Centre.