

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 :**

**S1079: *Limoniscus violaceus* - Violet click beetle**

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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## **S1079 *Limoniscus violaceus* Violet click beetle**

*Audit trail compiled and edited by JNCC and the Invertebrate Inter-Agency Working Group*

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').

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

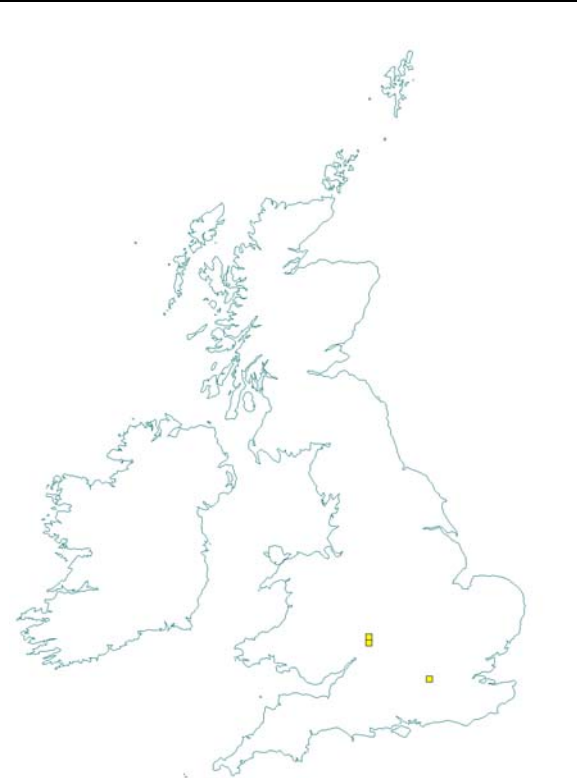
The violet click beetle is restricted to the south of England. It is absent from Northern Ireland, Scotland and Wales.

#### **1.1 Surface area of range<sup>2.3.1</sup>**

**300km<sup>2</sup>**

The above estimate was calculated within Alpha Hull software, using extent of occupancy as a proxy measure for range (see Map 1.1), at a 10km resolution. The value of alpha was set at 20km to reflect the dispersal capacity of this species.

**Map 1.1** Current extent of occurrence  
and occupied 10 km-squares (1985-2001)



Data sources provided in Section 6

## **1.2 Date of range determination<sup>2.3.2</sup>**

**1985 – 2001**

Records from the Invertebrate Site Register for England (provided by the NBN Gateway) dated 1985 onwards were used to calculate the current extent of occurrence; the most recent record available on the Gateway at the time of calculation was 2001.

Records from this time period provide the best representation of the 2007 range, as it is understood by experts.

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

**Moderate**

Knowledge of *L. violaceus*' occurrence in the UK is relatively recent; it is cryptic in its habits, and survey requires damage/destruction of habitat. As a result, work involving direct contact with *L. violaceus* has, out of necessity, been kept to a minimum. Extensive survey was undertaken at two known sites, and at other possible locations, in southern England. However, because confidence in findings is relatively low, data quality is reported as moderate, rather than good.

## **1.4 Range trend<sup>2.3.4</sup> and range trend magnitude<sup>2.3.5</sup>**

**Stable**

Data does not exist for the violet click beetle prior to 1937. Expert opinion is that *L. violaceus* was once more widely distributed, and that loss of old-growth forest conditions in ancient wood-pastures and parkland have resulted in declines.

This species has been present in the same three 10km-squares since at least the mid-1980s, suggesting that range has remained stable in the UK since the Habitats Directive came into force in 1994.

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

**1985 – 2001**

## **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>**

**300 km<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').

On the basis that the range has been stable since the late 1980s, it can be assumed that the range in 1994 (when the Habitats Directive came into force) was equal to the current range.

However, based on knowledge of the species' ecology and the likely distribution of veteran trees over the last 100 years, expert opinion is that the species was more numerous than present figures suggest, and that the population is now insufficient to support a viable GB population.

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

### **Favourable**

Although the favourable reference range can not be quantified, expert opinion is that this value would be substantially greater than (>10%) current range. But, as we have insufficient data to substantiate this, the conclusion has to be that range is Favourable i.e. that there has been no change in range since 1994.

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

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

#### **3 populations**

At present, this species is known at three sites, within three 10km-squares. However, due to the cryptic nature of this species, there may be additional populations that have yet to be discovered.

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

**2004**

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

#### **2 = Extrapolation from surveys of part of the population, sampling**

Destructive survey was undertaken at two known sites and at other potential locations in southern England in 2004.

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

#### **Moderate**

This species was not identified until 1937, due to its cryptic habits and rare and easily destroyed habitat. Therefore, although a full survey was undertaken in 2004, confidence in the current estimate is low. Data quality is therefore reported as moderate, rather than good.

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

#### **Decreasing**

Expert opinion is that *L. violaceus* populations most probably suffered decline throughout the 20<sup>th</sup> Century, due to reductions in suitable habitat. However there is insufficient data to support this. Recent work on this species leads to the conclusion that the species is probably declining but, because of the problems associated with surveying this species, confidence in this assessment is low.

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

**2002 – 2005**

The period of the last UK Biodiversity Action Reporting Round i.e. a period of active investigation.

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

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

**5 = Natural processes**

Habitat losses, driven predominantly by natural processes but also by direct human influence, may be causing declines in population; at one site oak is regenerating instead of beech, and this is leading to a loss of appropriate habitat. Also, the mature trees that currently support the

species are being lost at a faster rate through natural death, than younger trees that are reaching over-maturity to replace them.

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

**Not applicable**

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

**166 Removal of dead and dying trees**

**241 Collection** - likely to be of minor importance

**950 Biocenotic evolution** - seral succession/natural vegetation change from beech to oak at one of its sites

**954 Invasion by a species** - regeneration is currently been suppressed by *Rhododendron ponticum* at one of its sites

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

**166 Removal of dead and dying trees**

**241 Collection** - likely to be of minor importance

**950 Biocenotic evolution** - seral succession/natural vegetation change from beech to oak at one of its sites

**954 Invasion by a species** – regeneration is currently been suppressed by *Rhododendron ponticum* at one of its sites

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

**6 (viable) populations (current is more than 25% below the favourable reference population)**

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’).

Populations are currently thought to be declining and best available information suggests that this has probably been true throughout the 20<sup>th</sup> Century. However, the rate of this decline is unknown. Based on a professional understanding of the species, an increase in the number of localities (possibly to 5-10 localities) is most likely required to guard against simple stochastic extinctions, and thereby support the species at a viable level.

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

**Unfavourable – Bad and deteriorating**

The current population is more than 25% below the favourable reference population and continuing to decline. A judgement of Unfavourable – Bad and deteriorating is therefore reported.

## **3. Habitat for the Species in the Biogeographic Region or Sea<sup>2.5</sup>**

Brown, red/black rot decay cavities in very ancient beech (one site) or ash (two sites) trees in sites with large populations of such trees occurring in old growth forest (single site, beech) or wood-pasture (ash - two sites).

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

**Unknown**

This is difficult to assess, because only a small number of trees at any one site support *L. violaceus*. Expert opinion is that the total area of wood-pasture/old growth forest of the three sites together comes to, perhaps, 6km<sup>2</sup>, but occupancy within that area is very low.

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

#### **2000-2005**

The period of the last UK Biodiversity Action Reporting Round i.e. a period of active investigation.

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

#### **Poor**

The estimate is based on expert opinion, rather than scientific measurement.

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

#### **Decreasing**

Observations suggest that *L. violaceus* habitat is in, and continues to, decline.

The number of ancient trees at parkland and wood-pasture sites across the country is inevitably in decline, as a result of long-term imbalances in age structure. This has meant losses from older tree generations have been greater than recruitment into the older age cohorts. Work is under way at many sites to redress this imbalance. However, there will be a long time-lag before recruitment balances loss at most places.

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

#### **1900-2006**

Although this species was only recognised in 1939, it is possible that it has been present in the UK for much longer, but had not been found due to its cryptic habits. On this assumption, the trend period considered for habitat includes the past 100 or so years.

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

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

**5 = Natural processes**

At one site oak is regenerating instead of beech, and this is leading to a loss of appropriate habitat. Also, individual trees supporting are lost through natural death faster than younger trees come to over-maturity to replace them

### **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 and deteriorating**

Despite management, individual trees supporting this species are lost through natural death at a faster rate than younger trees come to over-maturity and replace them. Given the concern over habitat area and quality, the assessment is Unfavourable-Inadequate and deteriorating on the basis that there is good evidence to suggest that habitat has, and continues to, decline.

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

### Bad prospects

Individual trees supporting the species are being lost through natural death faster than younger trees come to over-maturity to replace them, despite on-site management to prolong tree life and plant new generations of trees. Provision of on-site artificial media has shown some limited success, but is likely to be unsustainable in the timescales required for new generations of trees to come into suitable condition.

Colonisation of new sites is desirable but very unlikely to occur naturally through likelihood of very poor dispersal ability of species and lack of dispersal corridors linking the very few possibly suitable sites. The optimal climatic/vegetational range may be likely to change northwards with global warming.

Existing populations are currently likely to be too small for artificial establishments to be a likely option.

Long-term viability of the species is therefore at risk, and for this reason, future prospects are judged as bad.

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

Unfavourable – Bad

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

### Unfavourable - Bad and deteriorating

Range is reported as Favourable, population, habitat and future prospects are all assessed as Unfavourable and in most cases deteriorating. In accordance with Annex C, the overall assessment is therefore Unfavourable - Bad and deteriorating.

**Table 5.1** Summary of conclusions

Parameter	Judgement	Grounds for Judgement (in accordance with Annex C)	Reliability*
<b>Range</b>	Favourable	Stable (loss and expansion in balance) or increasing and not smaller than the favourable reference range	3
<b>Population</b>	Unfavourable – Bad and deteriorating	More than 25% below favourable reference population	3
<b>Habitat</b>	Unfavourable – Inadequate and deteriorating	Any other combination  Despite management, individual trees supporting this species are lost through natural death at a faster rate than younger trees come to over-maturity and replace them. Given the concern over habitat area and quality, the assessment is Unfavourable-Inadequate and deteriorating on the basis that there is good evidence to suggest that habitat has, and continues to, decline.	2
<b>Future Prospects</b>	Unfavourable – Bad	Severe influence of pressures and threats to the species; very bad prospects for its future, long-term viability at risk.	2

<b>Overall Assessment</b>	Unfavourable – Bad	One or more Unfavourable – Bad	2
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\*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 Sources**

The Invertebrate Site Register for England (via the NBN Gateway).