

**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 :
S1044: *Coenagrion mercuriale* - Southern
damselfly**

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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S1044 *Coenagrion mercuriale* Southern damselfly

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^{2.3}

In the UK *Coenagrion mercuriale* occurs mainly in south-west England and in south Wales. In England, the main population centres are in the New Forest and along the River Itchen or in the river's associated drains, streams and ditches. Other populations occur in Devon, Dorset and Oxfordshire in suitable locations. In Wales, Preseli supports one of the strongest populations in the UK.

1.1 Surface area of range^{2.3.1} 4,033km²

The above estimate was calculated using records collected from 1990 onwards, within Alpha Hull software. Extent of occurrence was used as a proxy measure for range (see Map 1.1 below), at 10 km resolution. The value of alpha was set at 20km to reflect the mobility of this species.

1.2 Date of range determination^{2.3.2} 2000 – 2005

1.3 Quality of range data^{2.3.3} Good

The southern damselfly is a large, conspicuous species that is readily determinable in the field by an experienced surveyor. Dragonflies are a relatively well-recorded group of invertebrates with their own dedicated society (the British Dragonfly Society). There is a history of recording this species on its known sites albeit not in a co-ordinated way before 2001.

A survey of all known UK sites was undertaken in 2001 on behalf of the UK BAP steering group.

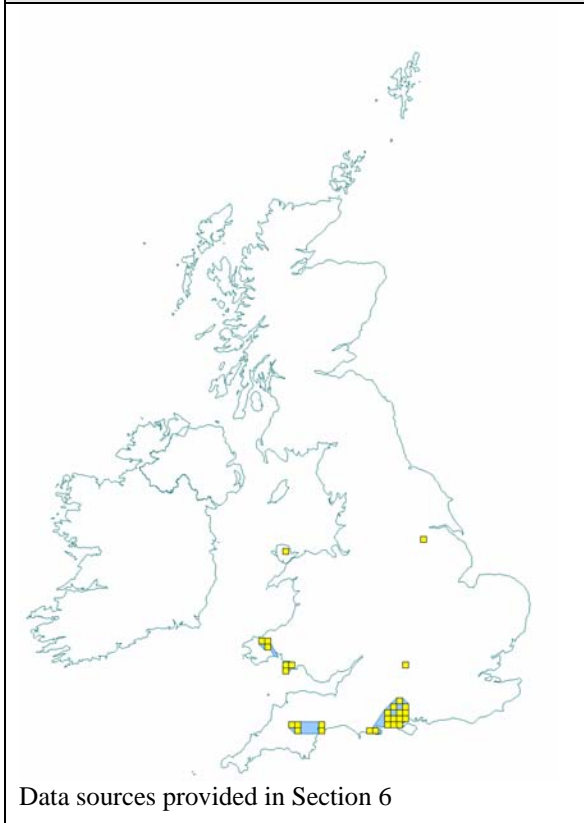
As a condition of the Habitats Regulations (1994) to report on the condition of SAC features, co-ordinated survey work was undertaken throughout 2005-06 in England and 2003-04 in Wales. This has led to an extensive amount of data and a very good working knowledge of the species.

For these reasons, data quality is good.

1.4 Range trend^{2.3.4} and range trend magnitude^{2.3.5} Stable

Recent records (post-1994), suggest that the range of the southern damselfly has remained relatively stable.

Map 1.1. Current extent of occurrence and occupied 10-km squares (2000-2005)



1.5 Range trend period ^{2.3.6} **1994 – 2006**

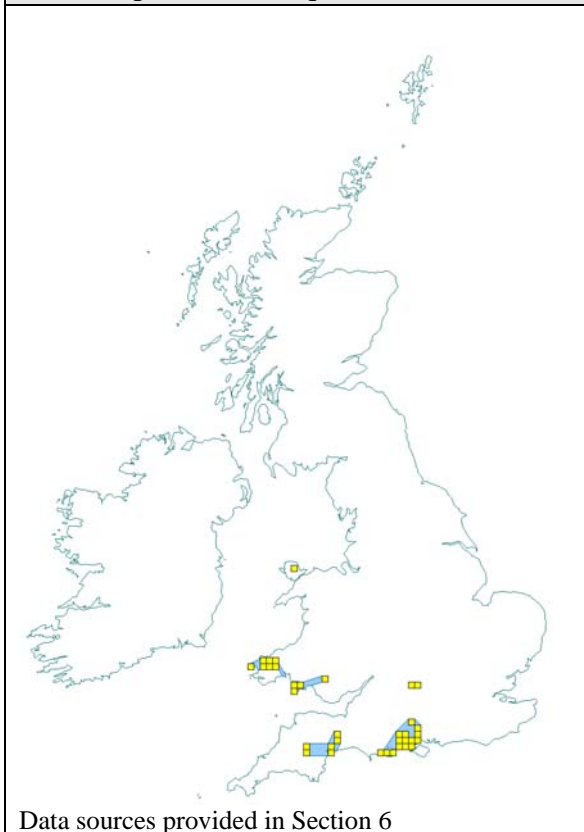
1.6 Reasons for reported trend in range ^{2.3.7} **Not applicable**

1.7 Favourable reference range ^{2.7.1} **4,033km²**

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’).

This species has always had a relatively restricted distribution in the UK; historic extent of occurrence (see Map 1.2) was calculated as 5,097km² (using an alpha of 20km). A comparison of this and the current extent of occurrence (4,033km²) suggest a historical decline of 20% since the 1960s. However, the range appears to have been relatively stable since the Habitat Directive came into force in 1994, and there is no evidence to suggest that this area is not sufficiently large to continue supporting viable populations. The current estimate is therefore considered a suitable favourable reference value for this parameter.

Map 1.2. Current extent of occurrence
and occupied 10-km squares (1960-2005)



1.8 Range conclusion^{2.8}

Favourable

At present, range is stable, and favourable reference range is equivalent to the current estimate. Therefore, in accordance with Annex C, the judgement is Favourable.

2. Population of the Species^{2.4}

2.1 Population estimate^{2.4.1}

82 occupied 1-km squares

Population counts have been attempted on a number of occasions with limited success. Further, since adult populations fluctuate from year to year, such estimates are not considered useful. A surrogate of occupied 1-km squares has therefore been reported; this estimate comes from the 2005 Biodiversity Reporting Round (www.ukbap-reporting.org.uk 'Status & Trends').

2.2 Date of population estimate^{2.4.2}

2005

2.3 Method of population estimate^{2.4.3}

2 = extrapolation from surveys of part of the population, sampling

There has been extensive survey work undertaken for this species in England and Wales, however there has been no systematic survey outside the known recent distribution of the

species. That said, there is an active dragonfly recording community across the UK and records of this species outside its range would be noted and verified.

2.4 Quality of population data^{2.4.4}

Moderate

The population estimate is based on a surrogate measure, not a direct population estimate.

2.5 Population trend^{2.4.5} and population trend magnitude^{2.4.6}

Decreasing

Since 2002, there has been a decrease in the number of occupied 1-km squares in the UK, for this reason, population trend was identified as 'Declining (slowly) in the last Biodiversity Action Reporting Round.

It is too early to say whether effort put in to maintain extant colonies and to improve habitat at extinct colonies will reverse the decline. A number of new records have been made at both new sites and sites at which the species is thought to have gone extinct; but it is too early to say if they have truly colonised i.e. established a breeding population.

2.6 Population trend period^{2.4.7}

2002 – 2005

The period of the last Biodiversity Action Reporting Round.

2.7 Reasons for reported trend in population^{2.4.8}

3. Direct human influence (restoration, deterioration, destruction);

4. Indirect anthropo(zoo)genic influence

Inappropriate heathland management (i.e. reduced grazing and over-deepening of shallow breeding streams), agricultural drainage, and dredging of breeding sites have been attributed to population declines.

2.8 Justification of % thresholds for trends^{2.4.9}

Not applicable

2.9 Main pressures^{2.4.10}

Inappropriate heathland management (i.e. reduced grazing and over-deepening of shallow breeding streams), agricultural drainage, and dredging of breeding sites have been attributed to population declines. These may be classified using the following categories:

141 Abandonment of pastoral systems

701 Water pollution

800 Landfill, land reclamation and drying out, general

803 Infilling of ditches, dykes, ponds, pools, marshes or pits

810 Drainage

830 Canalisation

852 Modifying structures of inland water courses

853 Management of water levels

2.10 Threats^{2.4.11}

Inappropriate heathland management (i.e. reduced grazing and over-deepening of shallow breeding streams), agricultural drainage, and dredging of breeding sites have been attributed to population declines. These may be classified using the following categories:

141 Abandonment of pastoral systems

701 Water pollution

800 Landfill, land reclamation and drying out, general

803 Infilling of ditches, dykes, ponds, pools, marshes or pits

810 Drainage

830 Canalisation

852 Modifying structures of inland water courses

853 Management of water levels

2.11 Favourable reference population^{2.7.2}

110 occupied 1-km squares (Current is 25% below the favourable reference population)

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').

This damselfly has suffered a 30% decline in its UK distribution since 1960 (www.ukbap.org.uk/UKPlans.aspx?ID=231) and continues to decline.

The national Biodiversity Action Plan targets for this species include maintaining the known extant populations and improving their viability by linking all existing population clusters that are within 5km of each other, so that there are fewer but larger population clusters. Clusters are defined as groups of records within 1km of each other. Currently there are 35 population clusters in the UK (27 - England, 8 - Wales). The aim is to achieve 12 larger population clusters in the UK by 2030 (8 - England, 4 - Wales). The target expressed in terms of number of occupied squares is to have 160 for the UK by 2030:120 in England and 40 in Wales.

Based on a professional understanding of this species, expert opinion is that the current population is not sufficiently large to be considered viable in the long-term. A minimum favourable reference value has been calculated on the basis that the current population is declining at less than 1% per annum.

2.12 Population conclusion^{2.8}

Unfavourable – Inadequate

Current population is declining and less than the favourable reference range. The assessment is therefore Unfavourable – Inadequate.

3. Habitat for the Species in the Biogeographic Region or Sea^{2.5}

The southern damselfly *C. mercuriale* has very specialised habitat requirements, being confined to shallow, well-vegetated, base-rich runnels and flushes in open areas or small side-channels of chalk rivers. Most sites are on wet heath.

3.1 Surface area of habitat^{2.5.2}

Unknown

No survey aimed specifically at determining the surface area of habitat used by the southern damselfly has been undertaken. It can be assumed, based on the number of occupied 1 km squares, to be less than 82 km², but this is a very crude approximation.

3.2 Date of estimation^{2.5.3}

Not applicable

3.3 Quality of data on habitat area^{2.5.4}

Poor

Although *C. mercuriale* habitat requirements have been documented, based on current information, it is not possible to estimate the area currently used by this species. Data quality is therefore poor.

3.4 Habitat trend^{2.5.5}

Stable

Based on expert opinion (J. Webb, pers. comm.), there have been general historic declines across *C. mercuriale*'s range as a result of inappropriate heathland management, and it is likely that more than 50% of habitat is in unfavourable condition (due to scrub encroachment). However, stream edge habitat was, and has always been, coming in and out of good condition, and has most probably remained stable.

Since the Directive came into force in 1994, the information available suggests that habitat quality and area has most probably remained stable overall; as long as grazing animals are present, the habitat generally remains favourable.

3.5 Habitat trend period^{2.5.6}

1994 – 2006

3.6 Reasons for reported trend in habitat^{2.5.7}

Not applicable

3.7 Suitable habitat for the species (in km²)^{2.7.3}

Unknown

3.8 Habitat conclusion^{2.8}

Unfavourable - Inadequate but improving

The habitat for extant populations of this species is in good condition but is reliant on continued conservation management. Based on population trends and a professional understanding of the species, the area of available habitat is not sufficiently large and (away from extant sites) may not be of suitable quality to support long-term survival of this species.

4. Future Prospects^{2.6}

Good prospects

This species is expected to survive and prosper in the UK.

Eight SACs have been designated for *C. mercuriale*, and has been the focus of much targeted management and surveillance in both England and Wales. Plans are in place to implement further conservation management, based on the results of recent research, to consolidate the range of this species and to bolster populations within the range. It has been the subject of a species action plan under the UK Biodiversity Action Plan, and is included on the revised UKBAP list.

4.1 Future prospects conclusion^{2.8}

Favourable

This conclusion relies on the conservation work put in place continuing.

5. Overall Conclusion ^{2.8}

Unfavourable – Inadequate but improving

Because the work put in place to halt and reverse declines in this species have not yet come to fruition, the overall conclusion is Unfavourable – Inadequate but improving.

Table 5.1. Summary of conclusions

Parameter	Judgement	Grounds for Judgement (in accordance with Annex C)	Reliability*
Range	Favourable	Current range is stable and not smaller than the 'favourable reference range'	1
Population	Unfavourable – Inadequate	Any other combination Current population is declining and less than the favourable reference range, but not by more than 10%	2
Habitat	Unfavourable – Inadequate but improving	Any other combination Based on population trends and a professional understanding of the species, the area of available habitat is not sufficiently large and (away from extant sites) may not be of suitable quality to support long-term survival	2
Future Prospects	Favourable	Main pressures and threats to the species not significant; species will remain viable in the long-term	2
Overall Assessment	Unfavourable – Inadequate	One or more Unfavourable-Inadequate but no Unfavourable - Bad	2

*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

Biological Records Centre - Dragonfly and Damselfly records; CCW - UK Biodiversity Action Plan: Invertebrate data for Ceredigion; Dragonfly Recording Network; Dorset Environmental Records Centre - Dorset SW Pilot species dataset; Natural England – Invertebrate Site Register (via the NBN Gateway)

University of Liverpool *C. mercuriale* survey data (D. J. Thomson pers comm)