

# Southern Damselfly

## *Coenagrion mercuriale*



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### Southern Damselfly distribution across Britain and Ireland.

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The Southern Damselfly is named for the distinctive mercury mark ♂ on the second segment of the male abdomen. Unique to the species, the mark can generally be used to differentiate males from the similar-looking Azure Damselfly *Coenagrion puella* and Common Blue Damselfly *Enallagma cyathigerum*, which are found within the same range. Both males and females can be differentiated from the Azure Damselfly by the pale bar across the head between the post-ocular lobes. They can be separated from the Common Blue Damselfly by the narrow, blue/green antehumeral stripes on the thorax and by a second short black stripe on the side of the thorax (the "Coenagrion spur"). In the field, the small size and weak, erratic flight of the Southern Damselfly give it a distinctive jizz. Both Common Blue and Azure tend to be paler blue, and Common Blue is a notably stronger flier, likely to be seen over open water.

### Lifecycle

Adults emerge between mid-May and late July and peak in late June. Teneral (immature) adults move away from the water to feeding sites until they are ready to breed (5-8 days). Mature males are seen perching and flying at breeding sites, but females only return once they have a clutch of eggs ready. After mating, they lay their eggs into the soft tissue of submerged plants such as Bog Pondweed or Marsh St. John's-wort. The eggs hatch within 3-4 weeks and the damselflies then spend about 2 years as aquatic larvae, first in detritus on plant roots then on the sediment surface. They reach the final or penultimate instar by the winter of the second year and the following summer, final instar larvae crawl out of the water onto emergent vegetation and shed their larval skin to emerge as adults.

## Habitat

The Southern Damselfly requires base-rich, shallow water with a permanent slow-to-moderate flow and relatively high water temperature that does not drop below freezing. In the UK it is found mainly in heathland streams and runnels in valley mires but there are also populations in two chalk rivers and their associated ditches. The watercourses must be open and unshaded with abundant submerged and emergent vegetation and clean, unpolluted water with a high oxygen content. Bankside vegetation is important to provide sites for perching and adult emergence and a degree of shelter is needed (either topographic or from adjacent vegetation). A layer of silty deposits or peat provides larval habitat within the stream bed.

## Distribution

Up to 25% of the global population is found in Britain, where it is at the northern edge of its range. In the UK, the New Forest in Hampshire is the major stronghold with other populations in Mynydd Preseli in Pembrokeshire and on the water meadow ditch systems of the Rivers Test and Itchen in Hampshire. There are scattered populations in Devon, Dorset and the Gower Peninsula and single small populations in Anglesey and Oxfordshire.

## GB status and rarity

Endangered and rare.

## Protection under the law

Fully protected under Schedule 5 Wildlife and Countryside Act (1981), as amended (a licence is required for surveys involving direct disturbance of populations or the capture and handling of individuals).

## Survey method

Both adult and larval surveys can be carried out to monitor populations. Larval surveys can take place at any time of year; however, the survey and identification of larvae is more difficult and time-consuming than that of adults and requires a license.

Adult surveys take the form of a fixed transect covering 100m of every 500m on larger sites or the entire length

of small sites, counting males within 5m either side of the channel. Surveys should be carried out during the peak adult flying period from mid-June to late-July in warm, dry and still weather conditions between 11:00 and 14:00. The temperature should be  $>17^{\circ}\text{C}$  with  $>50\%$  sun. Surveys should be carried out at the same site on multiple days (e.g. once a week) throughout the survey season if possible.

## Reasons for decline

The loss of grazing resulting in habitat change is the main factor in the decline of this species over the last 30 years, compounded by its limited dispersal ability. Changes in water flow due to abstraction and drainage and a reduction in water quality through agricultural run-off may also be factors.

## Habitat management for southern damselfly

Habitat management is needed to maintain mid-successional conditions. Appropriate livestock grazing can prevent vegetation from encroaching in the channel, helping to maintain flow, while poaching helps shallow areas and open conditions. In some cases, mechanical re-profiling and damming can be used to help achieve permanent, slow-to-moderate water flow (e.g. where streams have been canalised or become overly deep through erosion).

Where channels have become shaded by trees or scrub, careful clearance will reduce water loss through transpiration and remove barriers to dispersal.

Water quality management and monitoring is also crucial and can be achieved through working with local farmers, landowners and upstream land-users.

## Sources and further information:

Dally, G., 2016. *Southern Damselfly Management Handbook*. British Dragonfly Society. Version V1 MW

Thompson D. J., Purse B. V. & Rouquette J. R., 2003. *Monitoring the Southern Damselfly, Coenagrion mercuriale*. Conserving Natura 2000 Rivers Monitoring Series No. 8, English Nature, Peterborough.

<https://british-dragonflies.org.uk/species/>

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