Common Clubtail Dragonfly

Gomphus vulgatissimus

Status

GB Red List: Near Threatened

Identification

Length: 50mm. A medium size species with a distinctive club shaped abdomen. Unlike most dragonflies, the dull green eyes do not meet at the top of the head.

Male: young males are black with yellow markings on the body. As the dragonfly ages, most of the yellow markings turn green. The hind wings are also distinctively indented on the inside bottom corner in the male.

Female: a black body with yellow markings and no indent in the hind wing.

Larvae: 27-32mm when fully developed. The squat larvae are unique in having bulbous antennae, giving the exuviae a distinctive triangular head shape.

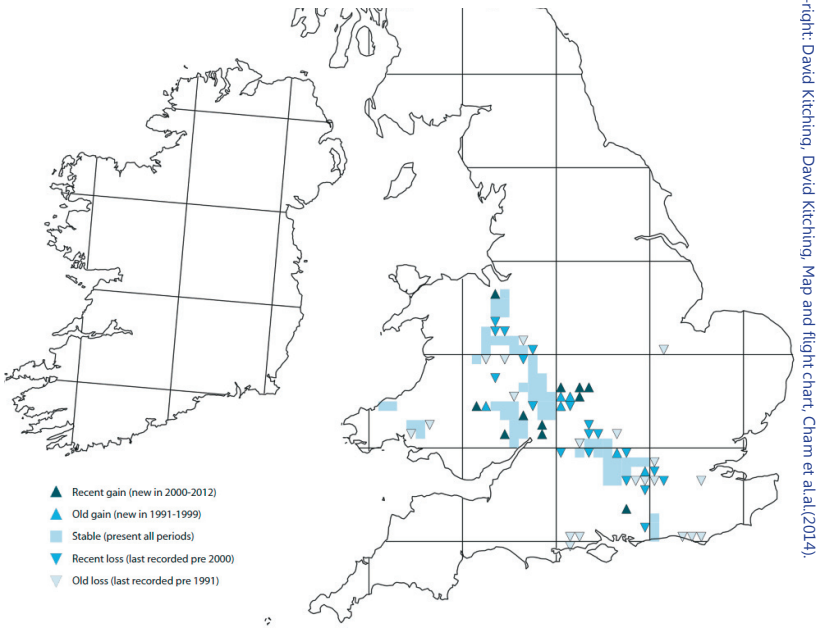
Distribution

In Britain the species is confined to midland and southern counties, with the River Dee supporting the most northerly population. It is found on the mature stages of seven river systems and their tributaries; five of these rise in the Welsh Uplands (the Dee, Severn, Wye, Tywi and Teifi) and two in Southern England (Thames and Arun). The Common Clubtail is an extremely local insect, but where suitable habitats occur it can be found in very large numbers.

Behaviour

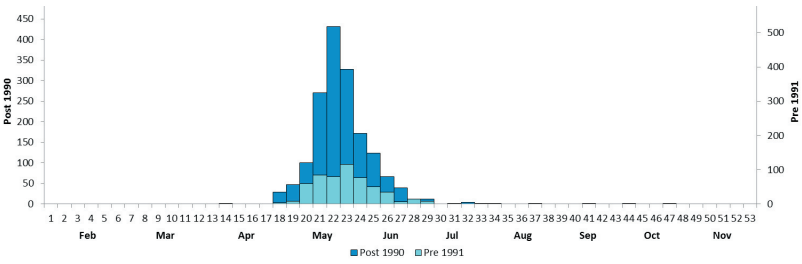
This dragonfly is elusive and can be seen most frequently during emergence as most of the adult life is spent away from water. They are often found in woodland and use the tree canopy more than most species. Unlike most British dragonflies, Common Clubtails can emerge in a horizontal position. Mature males are territorial, flying low over open water.

Distribution Map



Photos, left-right: David Kitching, David Kitching, Map and flight chart, Cham et al.(2014).

Flight Chart



Lifecycle

Copulation is rarely seen, but has been witnessed some distance from water. Females oviposit alone, favouring quieter stretches in an attempt to avoid male attention. They fly low over the water, dipping their abdomen below the surface several times. The larvae develop over 3 to 5 years before a tightly synchronised emergence, triggered by increasing day length and rising water temperature, in May and June. Following emergence, the maiden flight of teneral insects aims away from water, usually into vegetation at the top of the riverbank.

Habitat

The Common Clubtail is a riverine species typically associated with moderate to slow flowing water. It breeds in unpolluted, meandering rivers, which have a depositional nature. Silty substrates are favoured as the larvae are burrowers, living in the silt and usually found on meanders, where silt deposition is greatest. They prefer gentle banksides and require slow flowing water at least 20cm deep. Inhabited reaches are typically adjacent to woodland, as this provides cover for the adults, rather than more open habitats.

Threats

Poor water quality impacts upon this species, with Gomphidae one of the pollution-sensitive taxa assigned a value in water quality assessments. Toxic inputs from domestic and industrial sources are likely to affect Clubtails. Additionally, while larvae are capable of dealing with some silt deposition, they suffocate under layers of silt several centimetres thick. The impact of dredging is not completely understood, but it is considered to have a significant effect on the larval stages as the insect spends 2-3 years as a larva.

Major river works that fundamentally alter river hydrology have a detrimental impact on Clubtails, with excessive scouring of the bed, steep banksides and loss of bankside vegetation major issues. The passage of fast moving boats can also be detrimental, exposing emergence sites to wave action. Trampling of large sections of river banks by sheep and cattle can adversely affect emergent sites.

The synchronised emergence of the Common Clubtail over a short period leaves it vulnerable to changing weather conditions. Bad weather reduces the numbers emerging while hot weather can be detrimental to burrowing species, with dried mud encrusting the larval skin and preventing ecdysis.

Loss of woodland within easy reach of the river limits the suitability of much habitat for this species. Changes in hydrology, which lead to lowering of the water table and drying of the habitat, also poses a threat, particularly as the Common Clubtail has a 3-5 year development period.

Management Advice

Before and after management is undertaken, surveys should be conducted to assess it's impact. This is particularly important where dredging operations are required. Dredging or weed cutting should be undertaken selectively to avoid extensive disruption to long stretches of the watercourse. Ideally, no more than one-third of the area of a given habitat should be cleared in any one year. Dredging of meanders should be avoided. The spoil should be left on the bank for several hours to allow larvae to return to the water. It should then be removed to ensure that runoff from plant decomposition does not feed directly into the watercourse.

In localities where the species occurs, it is important that the habitat does not deteriorate. Water quality should not be allowed to decline and where water quality is considered a limiting factor to the species, attempts should be made to improve the situation. The intensity and speed of boating activity should be controlled to avoid extensive disruption to larval habitats. Zoning the activity and imposing speed limits are likely to be beneficial.

Scrub and tree management should be done with care. Excessive tree removal should be avoided around known emergence sites. A careful balance must be struck between adequate shrub/tree cover and avoiding excessive shading; at no time should shading exceed 50% of water between 11:00 and 16:00 hours during May to July. The Common Clubtail requires woodland at a reasonable distance away from the river so nearby woodland should be retained, although a habitat mosaic will favour greater species diversity.

Any habitat creation should provide areas of low current velocity in the channel. Within these, emergent and bankside vegetation should be encouraged and managed. Restoration should attempt to retain meanders and maintain continuity of suitable habitat. Silt movement should be minimised during in-river work, for example using silt mats. Provision of riverside buffer strips would also benefit the species.

Sources: Cham, S.,Nelson, B., Parr, A., Prentice, S., Smallshire, D. & Taylor, P. (2014). Atlas of the Dragonflies in Britain and Ireland. Field Studies Council.

Photos: Common Clubtail habitat on river Severn; Common Clubtail larva, Christophe Brochard

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