

# Brilliant Emerald

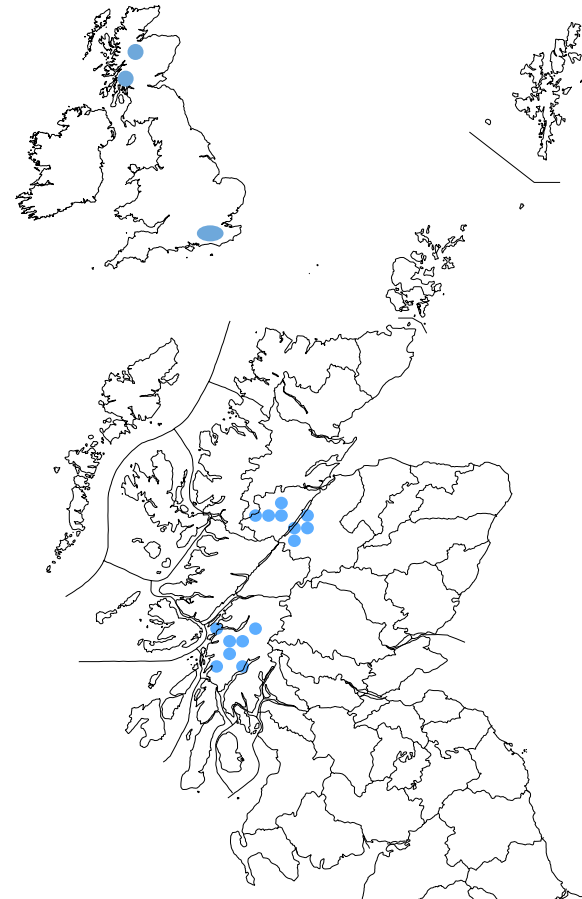
## *Somatochlora metallica*

Status  
GB Red List: Vulnerable

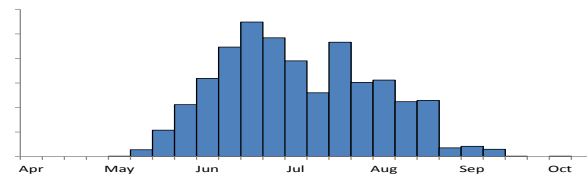
### BDS Species and Habitat Management Sheet #1



Mature male. Mike Thurner.



Flight Period



## ID Features

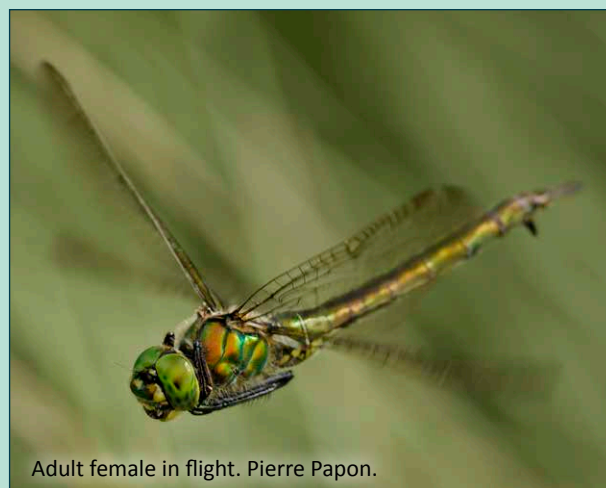
**Length:** 50 – 55mm

The Brilliant Emerald is one of three emerald dragonfly species found in Scotland, it is larger and often appears brighter coloured than Downy Emerald and Northern Emerald. The body is bright metallic green with paired yellow markings at the top of the abdomen. The eyes are bright green when mature, although immature individuals have brown eyes. There are yellow markings on the 'face'; there is a 'U' shape between the eyes and the jaws are also yellowish. The wings have a yellow tint.

**Males:** Males have a narrow 'waist' at the top of the bulbous abdomen.

**Females:** The abdomen is the same width for the whole of its length with a conspicuous 'spike' (vulvar scale) below section 9. The leading edges of the wings (costa) are yellow.

**Larvae:** Squat and spider-like with long legs. Fully developed larvae have a body length of between 23 and 26mm with prominent hooked spines on the upper (dorsal) side of segments 4-9 of the abdomen.



Adult female in flight. Pierre Papon.



The yellow 'U' shape between the eyes. Peter Vandome.



The 'spike' below section 9 of the female's abdomen. Peter Vandome.

## Behaviour

**Flight season:** May – August (peak June / July). In good weather, this species will be on the wing between 9am and 8pm. When flying, the abdomen is kept horizontal. Brilliant Emeralds feed, rest and mate in trees or woodland near to the waterbody. **Males** are territorial and patrol the edges of the water, they fly slightly higher and further away from the shore than Downy Emeralds.

**Females** will spend time away from the waterbody, foraging in the tree canopy. They will venture to the waterbody in cooler conditions to avoid males. At Scottish sites, females lay eggs into mosses or muddy peat at the edge of the loch.



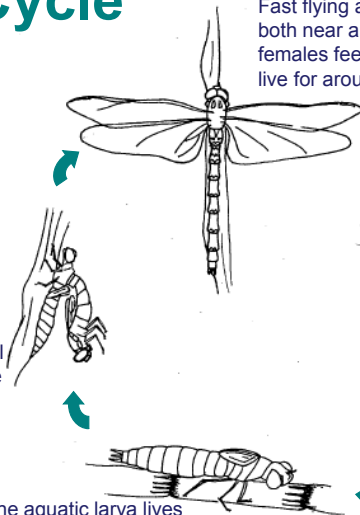


Brilliant Emerald exuvia – note the prominent dorsal spikes on the upper side of abdominal segments 4-9. Peter Vandome.

# Life Cycle

## Emergence

Larvae climb out of water usually up bankside bushes, heather and long grasses. The adult emerges from the larval skin, leaving behind the shed skin called an exuvia. The process takes several hours, and it can take a few days to reach mature colouration.



## Adult

Fast flying and manoeuvrable aerial predators, seen both near and away from water. Both males and females feed in woodland away from water. Dragonflies live for around 1-8 weeks as adults.

## Mating

Takes place in the 'wheel' formation. The male clasps female behind the head and she brings her abdomen up to meet him then they will fly up to the tree canopy.

## Egg Laying

Females may egg lay alone. When egg laying, the tip of the abdomen is bent upwards. To lay eggs, they either dip their abdomen into the water and release eggs, or lay eggs above the water on vertical banks covered with *Sphagnum*.

## Larva

The main life stage, the aquatic larva lives underwater for between 2 and 3 years. They are voracious predators, they shed their skin several times as they grow. Shade appears to be important for the development of larvae, as they can be found at the edge of water under overhanging banks, in detritus or, occasionally, under stones.

## Threats

Planting immediately adjacent to waterbodies.  
Any operation that might damage the edge of the breeding habitat or change the water chemistry.  
Hydro schemes and raising loch levels.  
Dredging.  
Stocking with fish.



Loch a'Chrion-doire, Argyll; a Brilliant Emerald breeding site. Peter Vandome.

## Scottish Habitat

Brilliant Emerald dragonflies are found locally at neutral or acidic standing waters in Scotland and south-east England. In Scotland, this species is found in a variety of habitats. Most often the larvae are found in hill lochs and lochans of various sizes, including fairly small pools. Often these breeding sites are well-aerated, open lochs with some water movement. Extensive *Sphagnum* moss margins or overhanging banks are an essential feature for larvae, providing places to hide. Larvae also need some emergent vegetation to use for emergence supports. However vegetation can be sparse in some breeding pools. Usually breeding pools have some form of nearby shelter such as planted trees, natural woodland or topographical features. Adults can be found foraging for prey in unshaded mires and wide rides in forestry plantations, so tree cover around breeding sites and nearby woodland are important habitat features for this species. Brilliant Emeralds are mainly found at altitudes of 200m - 400m above sea level, but mating has been observed at over 600m above sea level.

## Habitat Management Advice

Aquatic vegetation should be managed so that it does not become too abundant as this would result in there not being much open water exposed to the sunlight. Wet areas should be left open and areas with poor growth of conifers cleared to create rides and clearings to provide foraging habitat for this species. This also benefits other species like deer. Particular regards should be paid to any forestry operations that could potentially effect lochs where Brilliant Emerald breed and some shelter away from the water's edge should be maintained. Any planting around lochs should be kept well back over 50m from water's edge so the waterbody is not shaded by the trees.

