

Dragonfly and damselfly survey 2019

1. General

1.1. Dragonflies and damselflies

Dragonflies and damselflies are large, day-flying insects. Damselflies are smaller and more delicate-looking than dragonflies. Damselflies have a weak, fluttering flight, whereas dragonflies are powerful flyers. In the text below the word dragonfly refers to both dragonflies and damselflies.

Dragonflies have a three-stage life cycle: egg, larva and adult. Female dragonflies can lay hundreds of eggs during their adult lives. The eggs of most of the British species hatch within a few weeks. The eggs of emerald damselflies and some hawkers and darters hatch the following spring. Dragonflies spend most of their lives in their larval stage. The larvae of all the British species live in standing or running fresh water. Apart from those species that overwinter in the egg stage, all British dragonfly species pass at least one winter in the larval stage. In most species, development is completed within one or two years. However, Golden-ringed dragonfly may take five years to reach the adult stage. Development time is temperature-dependent taking longer in colder waters. The larvae of dragonflies feed on insect larvae, worms, snails, leeches, tadpoles etc. Dragonflies undergo incomplete metamorphosis transitioning straight from a larva to an adult. The transition takes place out of water. Dragonflies spend about a week feeding away from water and acquire adult colouration and sexual maturity. When mature, adults move back to the water to breed. Adult dragonflies are relatively short-lived. Most don't survive more than a few weeks. Adult dragonflies feed on other flying insects.

The life cycle described above highlights the importance of fresh water habitats for dragonflies. Habitat architecture (type of substrate, quantity of plants, the amount of shade caused by overhanging trees) is likely to be the most important factor governing the distribution of dragonfly larvae in a pond (Brooks and Cham 2014). The larvae of some species live among the sediments and rotting plant debris at the bottom of ponds and slow-flowing rivers locating slow-moving prey mainly by touch. The type of substrate has an influence on the species of dragonfly larvae that are likely to occur. The larvae of other species live among submerged plants. Their bodies are adapted to move quickly to catch fast-swimming prey, which they locate visually rather than by touch. Many species of dragonfly are powerful flyers and will disperse over wide areas in search of new breeding sites. Many species will breed only in specific habitats.

1.2. Surveying dragonflies

British Dragonfly Society has produced "Dragonfly Survey Guidance" which provides advice for dragonfly surveys and for site monitoring. The monitoring program established for Longis and Mannez ponds follows the recommendations presented in the guidance:

Weather conditions

Dragonfly activity is highly dependent on environmental conditions. Surveys should be carried out during sunny, calm and dry weather conditions.

Timing

The main dragonfly flight period is between May and September. Different species have different flight periods. If the aim of the survey is to record species diversity, at least 3 site visits should be made, spread out through the dragonfly flight season, in order to encounter as many different species as possible.

Transects vs. point count surveys

A transect survey consists of walking along a set route and recording what you see on the way. This is the best methodology when recording along linear waterbodies, such as rivers, or for surveying around the edge of a large waterbody, such as a lake.

A point count survey consists of standing at a specific point within or at the edge of a wetland and recording what you can see from that point. This is the best methodology for small waterbodies where the whole waterbody is visible from one point, or when recording larger or linear waterbodies with limited viewpoints. The amount of time you spend at a point count should be standardised. For example, you may limit each point count to 20 minutes.

2. Dragonfly and damselfly survey 2019

2.1. Aim

There are two fresh water ponds, Longis and Mannez, located within the Longis Nature Reserve. The aim of the survey was to record the dragonfly and damselfly fauna that these ponds support and to establish a monitoring program for the future.

2.2. Methods

To minimize the disturbance to breeding birds, the survey was conducted as point counts from Longis and Mannez bird hides. Each point count lasted 30 min. The point counts were carried out during sunny and dry weather conditions. The aim was to carry them out during calm days, but that wasn't always possible.

The Dragonfly Survey Guidance produced by the British Dragonfly Society recommends at least 3 site visits, spread out through the dragonfly flight season, for monitoring species diversity. The point counts at Longis and Mannez ponds were done between early June and early September. Longis pond was surveyed once a month and Mannez pond twice a month to see if the amount of visits had a significant effect on the results.

2.3. Results

The table below shows the dragonfly and damselfly species that were recorded at Longis and Mannez ponds in each month. During the survey period (early June-early September) only Emperor dragonflies were seen at Mannez pond. Black-tailed Skimmers, Common Darters, Emperor dragonflies, Migrant Hawkers and one unidentified damselfly species were seen at Longis pond. It

should be noted that some of the Emperor recordings might have been Southern Hawkers. From a distance these two species can be quite easily mixed. Southern Hawkers have been seen at both ponds. Mannez pond was visited 6 times (6x30 min point counts) and Longis pond 4 times (4x30 min point counts) during the survey period.

	Longis pond	Mannez pond
June	Black-tailed Skimmer Emperor Dragonfly unidentified damselfly	Emperor Dragonfly
July	Black-tailed Skimmer Emperor Dragonfly	Emperor Dragonfly
August	Black-tailed Skimmer Common Darter	Emperor Dragonfly
September	Common Darter Emperor Dragonfly Migrant Hawker	Emperor Dragonfly

Table 1. Dragonfly species recorded at Longis and Mannez ponds in each month.

Besides the species listed above, David Wedd has seen Common Blue Damselfly and Blue-tailed Damselfly regularly on both ponds.

According to David Wedd (2018) Mannez quarry was the main dragonfly locality until recently. Nowadays Mannez pond is a giant reedbed with few patches of open water. Thus, Longis pond has become the main dragonfly site. The results of this survey highlight the degradation of Mannez pond as dragonfly site. Emperors can be locally abundant in large well-vegetated ponds (Brooks and Cham 2014). Their larvae live among submerged vegetation. Longis pond still supports relatively high number of dragonfly species, but the pond is getting quite overgrown as well.

2.4. Conclusions

- Mannez pond has become very overgrown and doesn't anymore support as diverse dragonfly fauna as it did in the past.
- Longis pond supports relatively high number of dragonfly species. However, the pond is getting quite overgrown. It is important to manage the pond so that there is enough open water in the future as well.
- For monitoring dragonfly species diversity at Longis Nature Reserve the following method is recommended based on this trial survey:
 - o Point counts at Mannez and Longis ponds.
 - o It might be better to split the survey time (30min) between two survey points (15min+15min). Especially at Mannez the reedbed makes it hard to detect

- dragonflies/damselflies. Splitting the time between two survey points might help detecting more species and thus better record the species diversity the ponds support.
- 3 (June, July and August) or 5 (late May, June, July, August, early September) site visits during the dragonfly flight season.
 - Point counts should be carried out during sunny, calm and dry weather conditions.
- The monitoring program described above would give valuable information for planning the management of the ponds.
- If the number of species recorded at Longis pond decreases, it would indicate that the pond is getting too overgrown.
 - In case some of the vegetation at Mannez pond is cleared, the monitoring would show if other dragonfly species manage to recolonize the pond.
 - With only 3-5 site visits per season, the monitoring could probably be done every year.

Reference

Brooks, S. and Cham, S. 2014. Field Guide to the Dragonflies and Damselflies of Great Britain and Ireland. British Wildlife Publishing.

British Dragonfly Society. Dragonfly Survey Guidance.

Wedd, D. 2018. Alderney's Dragonflies. Alderney Wildlife Trust Summer Magazine.