

Barred Green Colonel 2025 Summary Report

Surveys (Ian Andrews update)

In 2025, adult surveys were carried out using visual observations on fine, sunny days during the species' standard flight period. Larval surveys were also undertaken using grapefruit halves. A total of six visits were made to sites within Dalby Forest, and one to a site outside the Forest with suitable fen habitat for soldierflies. Weather conditions across the survey period were generally favourable—bright, warm, and conducive to soldierfly activity. Each visit averaged 4.5 hours on site, and Diptera and Symphyta were collected for identification.

Odontomyia hydroleon was recorded at Dalby Forest during four visits but was not detected at any of the three additional potential fen sites surveyed.

Adult records at Dalby Forest 2025

24 June: 7 individuals (3 males / 4 females)

27 June: 1 female

30 June: 28 individuals (20 males / 8 females)

8 July: 1 female

Larval survey results

Northern seepages: Two grapefruit halves deployed; no soldierfly larvae found on any visit.

- Middle seepages: Three grapefruit halves; larvae likely belonging to *Oxycera* spp. recorded once, with no larvae on other visits.

- Southern seepages: Three grapefruit halves; several larvae found across the survey period, including one *Odontomyia* sp. The southern seepages remain the most productive area for larval searches due to their level, open, warm waterflow and suitable moss cover.

Other behaviour results

Lekking behaviour by males was observed over the northern seepage *Juncus* meadow on 30 June, with males hovering over vegetation. A notable spatial separation between males and females was recorded.

Although Hogweed, Marsh Thistle, Meadowsweet, Betony, Orchids, Marsh Helleborine, Devil's-bit Scabious and Marsh Hawk's-beard were all in flower and abundant on site, no GBC individuals were seen nectaring on them. However, a female was observed on a Hogweed umbel approximately 200 m from the usual site. It remains unclear whether this represented regular feeding behaviour or dispersal.

Other potential fen sites

Godfrey (2025) highlighted several additional seepage sites with potential suitability, including Ashberry Wood, Sand Dale & Ellers Wood, Blaiskey Bank Springs, Caydale, Rosedale, Ellerburn Bank, Troutsdale & Rosekirk Dale, and the Hole of Horcum. Webb (2024) also identified Jugger Howe Beck and Fen Bog as potentially suitable.

In 2025, Ian Andrews surveyed Sand Dale & Ellers Wood, Rosedale, and Dalby Beck Fen in good weather and during the species' flight period. No *Odontomyia hydroleon* were found. Rosedale and Dalby Beck Fen were assessed as unsuitable habitats, whereas Sand Dale & Ellers Wood may become favourable for *Odontomyia hydroleon* with changes in management.

Water level and water quality (SRT)

In 2025 both water level and water tests were carried out on site. The data obtained from monitoring water levels between July and October indicate that water levels seen at the Dalby Forest Fen site appear to remain relatively stable, with standard deviations remaining relatively low across the survey period. The water level data obtained across the earlier months of the recording period is potentially significant, as this was an extended period of warm weather with very little rainfall and drought-like conditions in some areas of the county.

Water chemistry monitoring was carried out in January and June with results indicating that the fen has consistently high carbonate hardness and alkaline conditions across all sites, which is expected due to the fen being a calcareous, tufa-fed seepage habitat. Ammonia and nitrite remained low throughout, indicating well-oxygenated seepage conditions.

The principal issue identified is elevated nitrate, with concentrations ranging from 7.8 – 39.7 mg/L. Highest values occurred in June in the Southern Fen and in the spring that feeds the Middle Fen. Expert review concluded that these levels are higher than expected for an unpolluted calcareous spring system, and that the fen is showing signs of catchment-derived nutrient enrichment. Seasonal increases are consistent with warmer soils, reduced dilution, and canopy-closure effects.

The runoff draining the conifer plantation showed nitrate levels comparable to the enriched seepages, indicating a likely shared source. Additional influence from nearby arable land is possible depending on the hydrological catchment.

Management implications include the need to address catchment nutrient inputs. Expert advice indicates that substantial conifer thinning or removal ($\geq 50\%$) would likely reduce nitrate loading and improve hydrological conditions for the fen's specialist flora and fauna.

Continued multi-season monitoring of water level, temperature, and water quality at Dalby Forest throughout the year will provide much better insight into the fen's hydrology, which can then be compared with the life history of *Odontomyia hydroleon* once a full year of data has been collected. This data will assist in research into the ecology of larval stages. They will be a valuable tool for ascertaining which, if any, environmental cues trigger behaviours such as larval emergence, metamorphosis, and reproduction. Furthermore, the data obtained will provide information on the management of the fens, helping maintain stability, assisting in the identification of potential new sites for translocation, and contributing to the development of *ex situ* protocols.

Management on site (Forestry England – Cath Bashforth update)

In 2025 the entirety of the Dalby Forest Fen was thoroughly grazed. The cutting and raking of rushes encouraged cattle to move into the fen areas, resulting in some necessary but not excessive poaching. As a result, the site now appears more open and there is improved connectivity among the northern sections. In late 2025 cattle were brought back onto site on 2nd October, with rush cutting performed by contractors in October and seepages cut by hand in November. Again, Lousewort seeds were collected and distributed across other parts of the site, to encourage further spread.

The relocation of lousewort from the initial seepage to the northern seepages has proved successful, as both sites recorded an increase in lousewort and a corresponding reduction in rush coverage. There was also an abundance of marsh hebeborines and orchids, and the density of rushes has noticeably decreased following several years of systematic cutting. This has seen more open area of water with moss suitable for *Odontomyia hydroleon* breeding.

On the opposite bank of the ditch, floral diversity significantly improved after last year's removal of scrub. Additional areas outside the grazed zones have been earmarked for scrub clearance to further enhance connectivity with another flush.

Recommendations for 2026

- **Ongoing adult and larval surveys to continue to assess population level and use of the site by the species**
- **Ongoing water level and water quality to monitor any changes**
- **Ongoing management of the site in terms of scrub removal and rush management plus poaching (hand and mechanical cutting, plus winter grazing); together with increasing spread of lousewort**
- **Explore potential management changes for Sand Dale & Ellers Wood**