

## Appendix K

N6 Galway City Transport  
Project Marsh Fritillary Survey  
Summary Report – 2014  
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**K1**

# N6 GALWAY CITY TRANSPORT PROJECT MARSH FRITILLARY SURVEY SUMMARY REPORT - 2014



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## 1 Methodology

The aim was to undertake surveys for potentially suitable marsh fritillary habitat and larval webs in targeted areas around Galway City. Initial survey areas were identified from the results of botanical field surveys undertaken as part of the wider studies relating to the constraints study for the N6 Galway City Transport Project. In addition, information was available from a marsh fritillary survey undertaken in 2013 by BEC Consultants.

The general approach to the work was to determine survey sites within the areas of search defined by Scott Cawley by use of orthophotographs and area visits, and then to undertake fairly rapid surveys to determine the extent of suitable habitat, classify its condition where appropriate and survey the area for marsh fritillary webs. The location of Marsh Fritillary webs was a primary concern of the project, with the gaining of an understanding of the area of potentially suitable habitat for the species in the areas of search a secondary but important aspect of the fieldwork.

### 2.1 Desk Study and identification of survey sites to be covered

The area surveyed in 2014 included sites that had been surveyed in 2013 and sites that had never been surveyed. Information provided prior to the survey included a copy of the 2013 survey report, areas highlighted in 2013 as holding suitable habitat (as shapefiles) and survey areas where Devil's-bit scabious had been recorded (as shapefiles).

The desk study involved the examination of orthophotographs (ESRI 'World Imagery' 2011) within the polygons known to hold Devil's-bit scabious. Where feasible, areas were discounted from further survey (for example where areas were clearly improved), areas for priority survey were identified where feasible (for example areas close to the existing known population or areas holding habitat looking similar to areas identified in 2013 as suitable) and potential access routes were identified.

### 2.2 Habitat condition and larval web field surveys

Habitat condition and larval web surveys followed approaches adopted by NPWS in 2010 with amendments agreed following the 2011 National Marsh Fritillary report (Woodrow, et al 2012).

#### 2.2.2 Larval Web Survey

Full larval web population surveys are highly intensive and concentrating on them would have detracted from the primary aim of the survey. For the most part, therefore, larval web were undertaken during targeted walks of each site relying on the experience of the surveyors to identify potential areas of search while in the field. Experience has shown that, given highly experienced surveyors, this can be a very effective and reliable survey method where the intention is to identify the presence of colonies rather than undertaking a full population survey.

The method for larval web surveys relied on the high level of experience of the survey team and was undertaken as follows:

- Site surveys were undertaken with two or more surveyors. Each surveyor was responsible for undertaking habitat condition surveys and larval web surveys
- Larval web surveyors walked a zig-zag route through the most appropriate habitat, concentrating on the most likely features and aspects for larval webs (based on experience)

- Where a larval web was found, surveyors undertook a short more intensive zig-zag search of the neighbouring area to ascertain whether it was a significant colony
- After three or four larval webs were recorded or if no more were located immediately, the surveyors continued to cover the remainder of the site in a zig-zag until all the habitat survey was completed and then moved on to the next site
- Hand-held GPS units were used to record 10 Figure grids of each web

Habitat condition was recorded at all web locations.

### 2.2.1 Habitat condition survey

The number of sites and the size of many meant that full habitat condition assessment of all sites would be unfeasible within the timescales. For this reason, habitat condition parameters were recorded only at sites where larval webs were recorded. While habitat condition assessments are particularly useful in marsh fritillary monitoring programmes and habitat management assessments since they allow for analysis of the selection of different sites (or sub-sites) by marsh fritillaries based on different criteria, such assessments were not central to this project which aimed to identify any *potentially suitable* habitat. The extensive experience of the survey team allowed this to be done for all sites, based on identification of areas of dense and / or extensive Devil's-bit scabious within a reasonably open sward.

Habitat condition assessments involved the collection of data on the following criteria:

- Vegetation height recorded by the average band in which the sample fell into (A= <12cm, B = 12--25cm, C = 25--50cm, D = >50cm)
- Devil's bit Scabious abundance ( A = 1-2 plants /m<sup>2</sup>, B = 3-9 plants /m<sup>2</sup>, C=10+ plants /m<sup>2</sup>, D = No plants)
- Presence of tussocks / dominant tussock-forming species present.
- Presence of low invading scrub (<25cm tall and >10% cover)
- Evidence of stock grazing (poaching, dung etc.)

## 2 Results

### 2.1 Survey times and areas covered

A total of 196 polygons were surveyed, comprising a total area of 936ha. Surveys were undertaken between 13 and 19 September 2014. A total of 25 field survey days were undertaken.

### 2.2 Suitable habitat

A total of 105 areas of suitable marsh fritillary habitat were mapped, comprising a total area of 80.6ha. Much of the area was managed by horse grazing and many areas were unmanaged. The quality of habitat ranged from marginal sparse through to good condition. Many areas were fairly rank and were likely to be limited in their longevity, with management often apparently abandoned or affected by access due to development in the vicinity.

### 2.3 Webs and colonies located

A total of 111 webs were located within around 40 areas of suitable habitat that were separated to some degree from other areas of suitable habitat. In many cases the

separation was simply related to sporadic occurrence of areas of dense Devil's-bit scabious across a varied habitat landscape. In other cases, the areas of suitable habitat holding colonies were separated as a result of land use change, management or infrastructure. 11 of the webs were located in four different areas identified as suitable habitat in the 2013 surveys but with no webs recorded in that year. The rest of the webs were recorded in areas that had not previously been surveyed.

Some sites held significant numbers of webs, or a significant numbers of webs were shared between a collection of proximal suitable sites. In other cases small numbers of webs or individual webs were found at sites a significant distance from other sites holding webs. In this latter case, this may suggest colonisation or re-colonisation of suitable habitat in 2014.

Webs located included both active webs and hibernation webs.

**Figure 1 - Initial areas of search identified from botanical surveys (areas with Devil's-bit scabious recorded)**

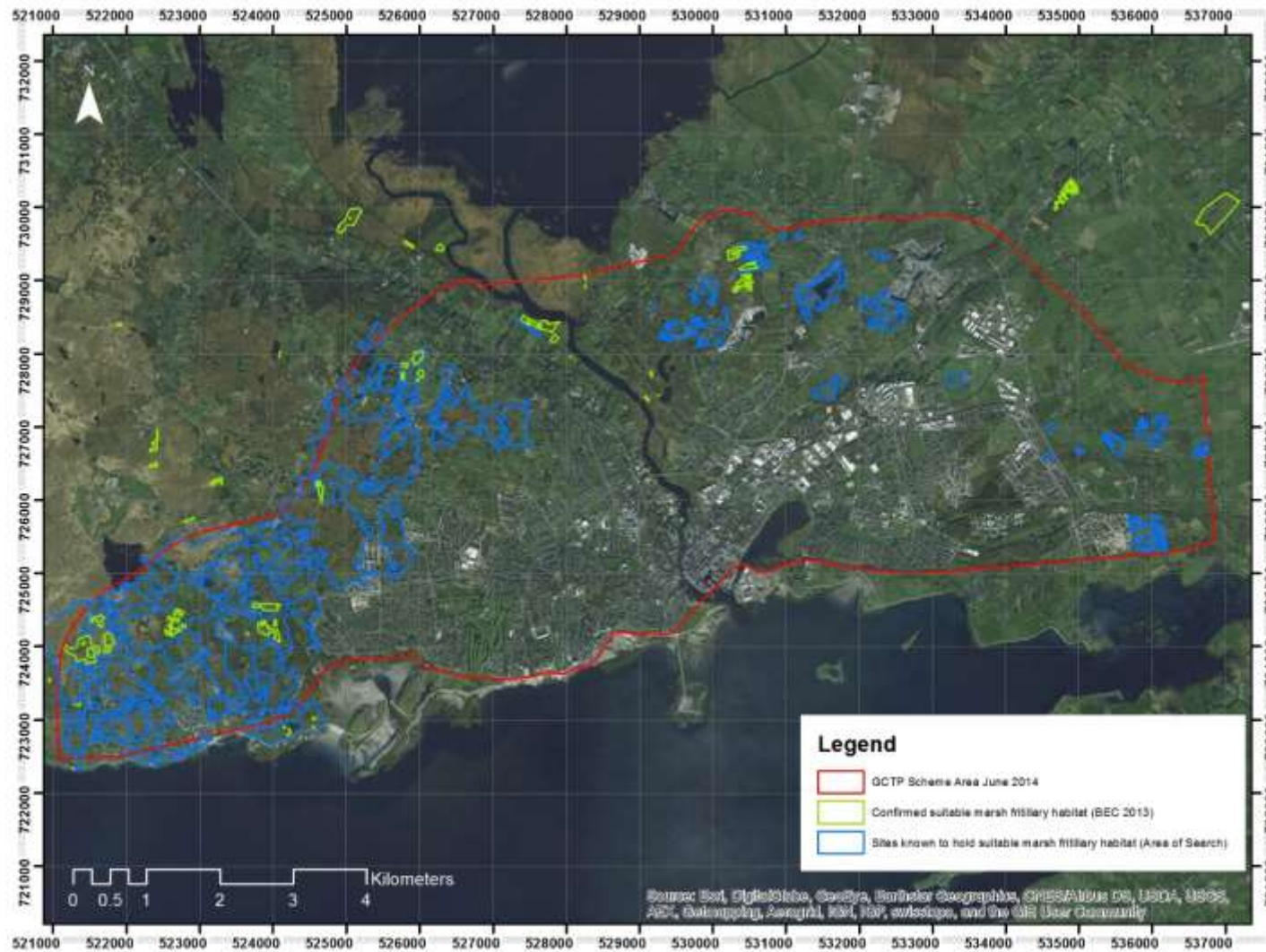
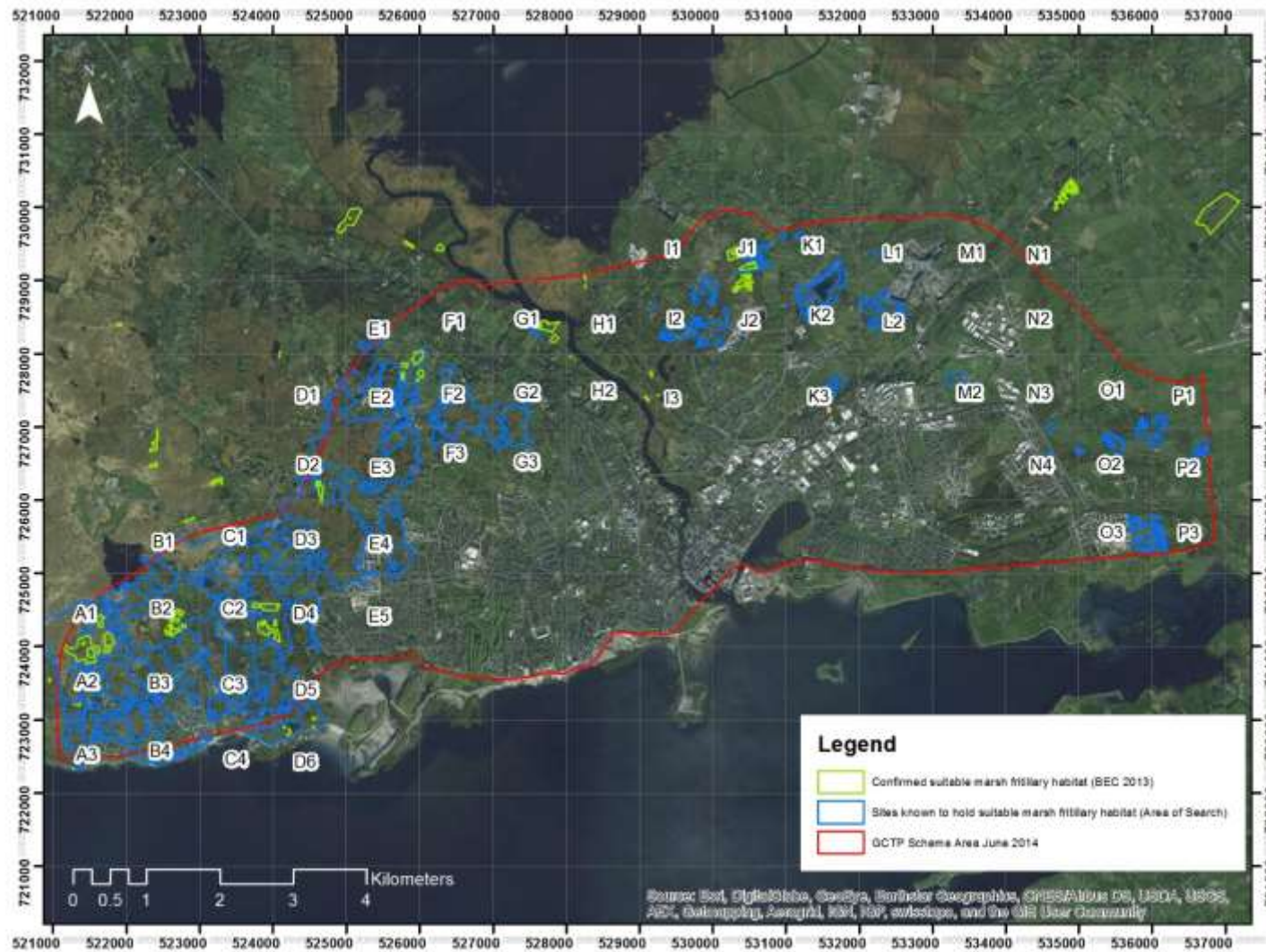
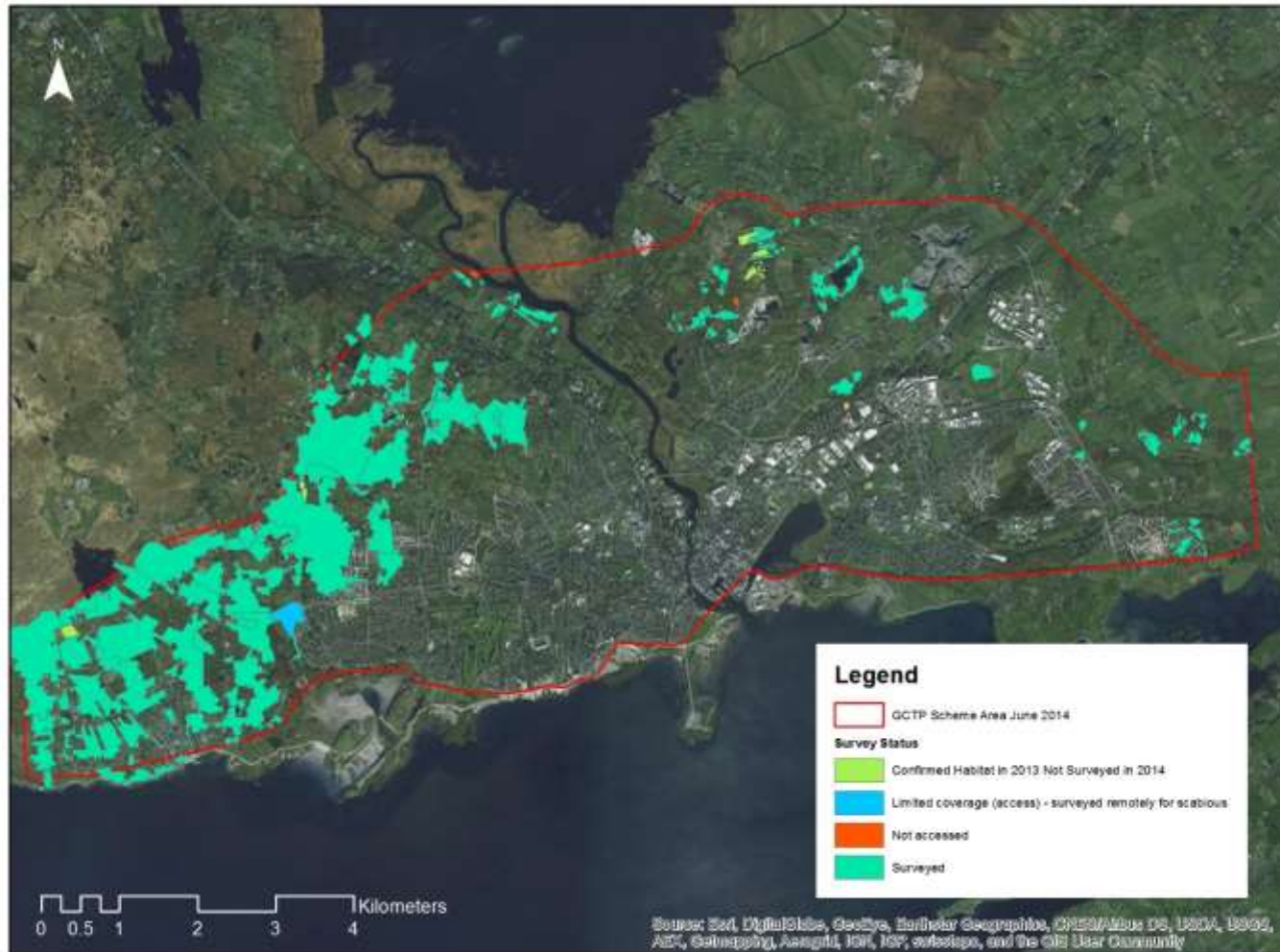


Figure 2 - Initial areas of search and km square grids for survey coverage





**Figure 3 – Areas surveyed in 2014**



**Figure 4 - Areas of suitable habitat located in 2014 (and 2013)**



**Figure 5 - Webs located and areas of suitable habitat recorded**



### 3 Limitations, Issues and discussion points

The surveys undertaken in 2014 reveal a population of marsh fritillaries in the vicinity of Galway City. As detailed previously, a full population survey was not undertaken. However, considering the number of polygons and total area recorded as holding suitable habitat for the species (105 polygons, comprising 80.6ha), the number of polygons within those shown to hold marsh fritillary larval webs (40 polygons), and the number of larval webs recorded (111), it is reasonable to conclude that the wider area holds a population of conservation significance. In many cases the population occurs as small and somewhat disjointed colonies across a fairly fragmented landscape. The area clearly holds some core colonies in extensive and coherent habitat networks (with the area around Boleybeg East particularly notable considering the amount of unbroken or closely connected suitable habitat and polygons recorded as holding larval webs) and also holds marsh fritillaries in areas where suitable habitat is limited and colonies may be considered either transient, precarious or both (for example the Galway racecourse and in the vicinity of Roscam and Cartron).

Some records of larval webs are consistent with the species colonising or re-colonising areas during what was a fairly settled year weather-wise (for example in the vicinity of Roscam and Cartron). However, the majority of records were in areas holding fairly significant numbers of webs and therefore probably well-established colonies.

The area to be covered meant that surveys had to be undertaken rapidly in order to ensure full coverage. This meant that full population surveys were not undertaken at sites beyond a general understanding of whether a colony was generally of a significant size or not. This means that the number of webs located is likely to be a significant underestimation in terms of population size. However, the experience of the survey team in finding webs within suitable habitat means that, from a presence / absence perspective, the results can be considered reliable. The general approach to surveys, in identifying potentially suitable habitat for the species, as well as confirmed colonies, allows for precautionary avoidance of potential future colonies.

A total of 105 polygons of suitable habitat were located ranging from very small areas to areas covering a number of hectares. Larval webs were located within 40 of these. The proximity of many of these areas of suitable habitat means that, even though webs were not located in 2014, they may be used by the species in other years and may, in some cases, be important to the future survival of metapopulations.

The nature of the species means that, in good years for the species when individuals are colonising the wider area, the smallest patches of devil's-bit scabious may attract travelling females and may consequently hold larval webs. These patches may not have been identified during the survey. However, such areas are not considered likely to be central to the survival of the species in the area.

Safe access to the whole of one area was not obtained due to blocking watercourses (the area highlighted as *Limited coverage (access) – surveyed remotely for scabious*) in figure 3. In this instance, where access was not feasible, the surrounding area was surveyed for potentially suitable habitat from vantage points using binoculars. Much of the area comprised fairly improved pasture, scrub, woodland and wetland and so would have held very little potential for the species. No flowering devil's-bit scabious was observed.

**Figure 6 - Suitable habitat and webs located (clockwise from top left: fairly extensive active web, hibernation web in background with remnants of web in foreground, small active web, active web).**



**Figure 7 - Photographs of suitable habitat (clockwise from top left: good condition rank habitat - unmanaged, good condition habitat – horse grazed, good condition habitat – understood to have extant planning permission, good condition habitat recently impacted).**

