

A Fenland Flora

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Recent changes in the Fenland landscape – example of Parson Drive and Murrow. Aerial photograph of 1946 and recent Ordnance Survey depiction of the same area. Note the marked simplification of the field pattern (with elimination of ditches) and expansion of Parson Drive village

I) Why compile a Fenland Flora?

Fenland is one of the most intensively farmed areas of Europe, stretching from Lincoln in the north to Cambridge in the south and occupying about 4000 square kilometres. Reclaimed over centuries from tidal marshes and floodplain fens, the present landscape is one of large arable fields separated by ditches that feed into a highly engineered network of main drains and rivers. Most of this former wetland is at or around sea-level and depends upon complex flood defences to protect it from marine and riverine flooding. Older human settlements in Fenland are often sited on slightly higher land (normally 2-10m above sea level) that would have been islands within the ancient undrained wetland, and it is on these clay islands standing above the peat and alluvial soils that the great majority of pre-19th century development is situated.

Within the modern Fens, the main refuges for native wetland plants and vegetation are drainage channels, older road verges and floodbanks and locally flooded gravel and clay workings. On the "islands" were natural woodlands (the last felled in World War I) and grassland created for livestock and the draught animals that worked surrounding arable land. Increased human population, mechanisation of agriculture and the demise of mixed farming greatly diminished the extent of these old grasslands during the 20th and 21st centuries. Between the *First Land Utilisation Survey of Britain* (Stamp 1937) and the *Land Cover Map* of 2007, the proportion of arable land rose from 68% of Fenland to 83.7%, whilst the grassland area fell from 22.4% to only 8.6%.

The counties that make up Fenland have been studied botanically since at least the 17th century but, almost without exception, the Fenland parts of these counties have been neglected. Few botanists have been resident in Fenland, and those from outside have often perceived the region as of little interest. Some areas were under-recorded e.g. the Cambridgeshire part of TL29 was believed to have <350 species but shown since ca 1970 to have at least twice that number. Other areas, especially out in the "cabbage patch" of SE Lincolnshire, had hardly any detailed data. **The Fenland needs a proper account of its flora.**

II) The Fenland Flora project: Defining the Fens

The Fenland Basin is the subject of a major long-term survey (ca 2006-2016) to map the distribution of the entire vascular flora and to characterise the plant assemblages that occur in this mainly artificial landscape. The project differs from the UK tradition of floras for administrative counties in that the focus is a landscape defined by topography, hydrology and soils – see **boundary map**. The guiding principles for defining Fenland are:

- Altitude < 5m AOD, except on wholly included Fenland islands
- On loamy peats and groundwater gleys, but including brown soils and stagnogleys on islands and in the Townlands, as well as unripened gleys of the Wash salt-marshes

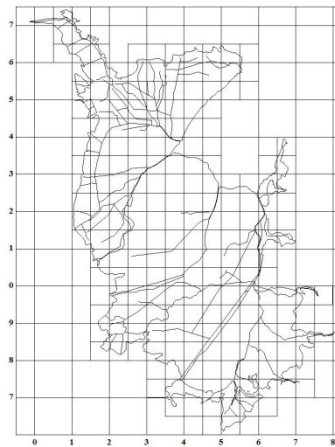
The recording unit for the survey is the 4km² tetrad of the UK national grid. The approach combines new field surveys of all important habitats present within each tetrad and a compilation of records from published and database sources for the period since 2000, as well as an account of floristic change over the centuries and up to the present day.



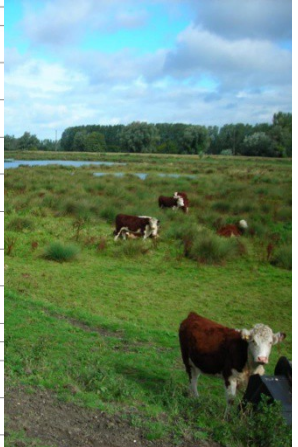
Key Fenland habitat – drainage channels and their banks



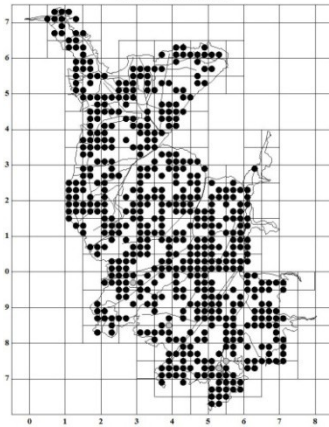
Allium ursinum in wooded graveyard (St Mary's, Long Sutton)



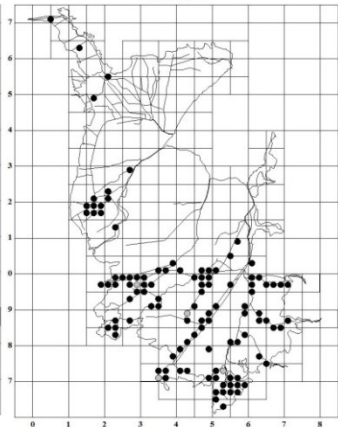
Boundary of the Fens as used in the Fenland Flora and main watercourses



Priority habitat of Grazing Marsh – the Isleham Washes



Tetrad (4m²) map of a ubiquitous species (*Arrhenatherum elatius*) to indicate approximate total survey coverage by autumn 2012



Sample tetrad map (*Nuphar lutea*) to indicate emerging evidence (as of autumn 2012) for distribution patterns in Fenland region

III) Progress to autumn 2012:

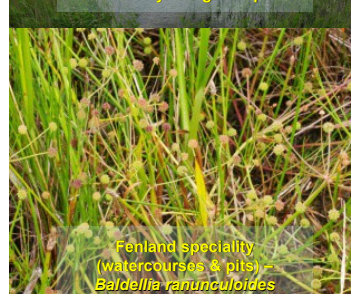
The *Fenland Flora* project is assembling a database of species growing throughout this region. The focus for new surveys has been mainly on areas previously under-recorded, but important datasets from sites of conservation importance (e.g. Wicken Fen and the Ouse Washes) have also been incorporated. Despite the incomplete coverage, clear patterns are already emerging, especially for aquatic macrophytes and the species of older grassland. These surveys confirm the importance of some well-known sites (e.g. those highlighted in the *Fens Biodiversity Audit*) as well as indicating new areas meriting attention and populations of regionally scarce plants.



Centre of species-richness – old clay and gravel pits



Centre of species-richness – old floodbank grassland



Fenland speciality (watercourses & pits) – *Baldellia ranunculoides*



Fenland speciality (disturbed ground) – *Galeopsis speciosa*

IV) Next steps

The *Fenland Flora* will continue to target tetrads without any modern data or with very sparse information, attempting to complete coverage of the region in the next 4-5 years. Attention will also be paid to the river valleys entering Fenland where they meet the definition of the flora area, as well as potential hotspots for botanical diversity.

Anyone interested in contributing to the Fenland Flora should contact Owen Mountford at om@ceh.ac.uk or Jonathan Graham at jonathan.graham@ntlworld.com.