

## EXPANDING THE UK'S NETWORK OF LONG-TERM ECOLOGICAL EXPERIMENTS



Throughout 2022, ECT has used this column to highlight recent long-term ecological field experiments (LTEs) added to its national register. We close the year with a focus on the most recent addition – the Wicken Fen Vision grazing experiment located a few miles north of Cambridge in East Anglia on floodplain grassland and scrub. Begun in 2007, it is the first LTE to join ECT's network from that region, and it builds upon a long history of environmental research on the wider Wicken Fen Nature Reserve that has been conducted over many years by the National Trust and its partners. It was added to ECT's network in May 2022 by lead researcher Francine Hughes from Anglia Ruskin University in Cambridge, bringing the number of *currently active* LTEs on our national register to 36.

The experiment is linked with the Wicken Fen Vision project located on a part of the nature reserve undergoing landscape-scale habitat restoration ('rewilding') from former arable agriculture, where degraded

peat soils overlay clays and chalk. The Wicken Fen Vision area is grazed by herds of free-roaming, minimally managed highland cattle and Konik horses and covers 479 hectares. A smaller area within it of 119 hectares has been subject to a consistent natural regeneration and low-density grazing approach with no seeding or planting. It is in this area that the long-term grazing experiment was established 15 years ago, and provided an unusual context for understanding how habitats might develop on highly modified lowland peat soils over time. There are seven grazing exclosures across the 119-hectare area, with paired grazed and ungrazed plots associated with each one for analysis of the effect of grazing versus no grazing on the development of vegetation across the site.

For the first ten years to 2017, botanical surveys of vascular plant species were conducted annually and will subsequently be undertaken every five years thereafter. Data from this year's first five-year survey are yet to

be published, but the first ten years of the experiment have demonstrated a very clear divergence through time between grazed and ungrazed areas (Stroh *et al*, 2021). This is largely attributed to significantly greater canopy height and light and fertility values within the grazing exclosures. Species richness proved much higher in grazed compared with ungrazed areas, and species assemblages separated throughout the first decade of study. It seems clear so far that extensive free-roaming grazing has had significant impacts on both vegetation structure and species richness, but it is notable that effects varied across the 119-hectare study site because of differing historical land use and peat condition, and also the different times at which three sub-areas went into 'natural regeneration' from arable use (1953, 1993 and 2006).

One key aspect for ECT in 'championing' LTEs involves promoting them as ecological research 'platforms' for others to use, and the Wicken Fen grazing experiment is already a prime example of this. Since their inception in 2007, the grazed and ungrazed areas have been used extensively by other researchers looking at topics ranging from ground beetle assemblages, to soil seedbanks and the effects of soil moisture content on vegetation development. For more information and to gain access to the LTE, see:

<https://www.nationaltrust.org.uk/wicken-fen-nature-reserve/features/wicken-fen-vision>



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