

A needle in a haystack? Searching for rare species in Northamptonshire



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Rare Plant Registers

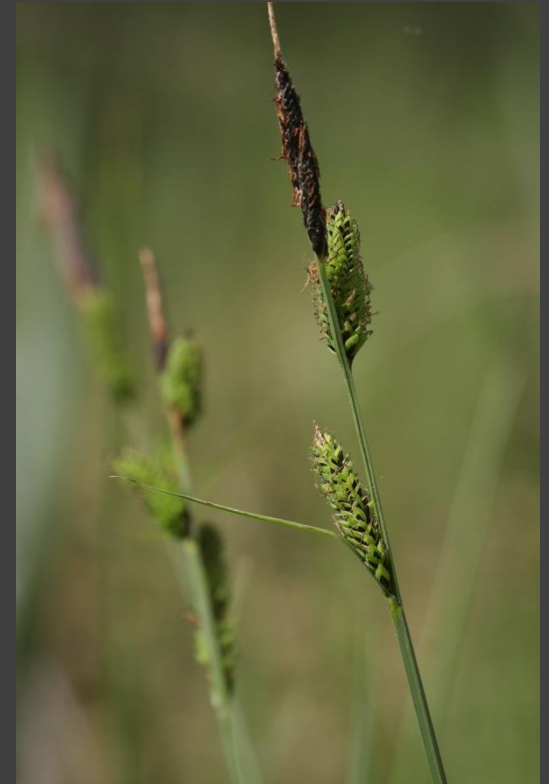
In the early 1990s Franklin Perring suggested that all VCs should have lists of locally rare species. Standardised criteria for 'Rare Plant Registers' (RPRs) in 2001, and updated in 2005. There are currently over 50 published RPRs.

A species is included if it is native or archaeophyte and meets one or more of the following criteria:

- endemic
- nationally rare/scarce/threatened
- locally rare (3 sites or fewer)
- locally scarce/declining (10 sites or fewer, or thought to be in serious decline)

Northamptonshire RPR

- Northamptonshire RPR published in 2008 and updated online 2014
- Uses 1970 + records
- Every effort was made to check current status of RPR records, but a big job
- At the start of 2016 Rob Wilson (VCR) asked for help in relocating a selection of RPR species
- I volunteered to attempt to relocate records from four hectads close to my home in the north-east of the county



Preparation

Preparation for my fieldwork took into account

- Time of flowering/fruiting
- Access restrictions, if any
- Precision of last record
- Date of last record
- Additional records (if any) on DDb to cross-reference

Prior to going out I printed maps (using *Cucaera*) with the GR marked for each species. This was particularly useful if the record was at monad res (footpaths, logical routes, etc.)

Fieldwork

- When a species was refound, a photo of the plant and habitat was taken, as was a 10 m GR
- A habitat photo was taken if the site appeared suitable but the species could not be found
- If a species was not refound on the first visit, repeat visits (especially for arable weeds) were made throughout the spring/summer, usually after square-bashing in the locality



Main results

Out of a total of 78 records searched for:

- 29 (37%) were refound
- 45 (58%) were not refound
- 4 (5%) were misidentified by the previous recorder

When records were grouped by date class:

- 46% of records up to 10 years old were refound
- 33% of records 11 - 20 years old were refound
- 21% of records >20 years old were refound

There are a number of explanatory factors which may account, in part, for such a poor re-find rate

Problems with grid references

A search area of 100 m² can be challenging, let alone 1 km² – 11/13 records (85%) at the latter precision were not refound

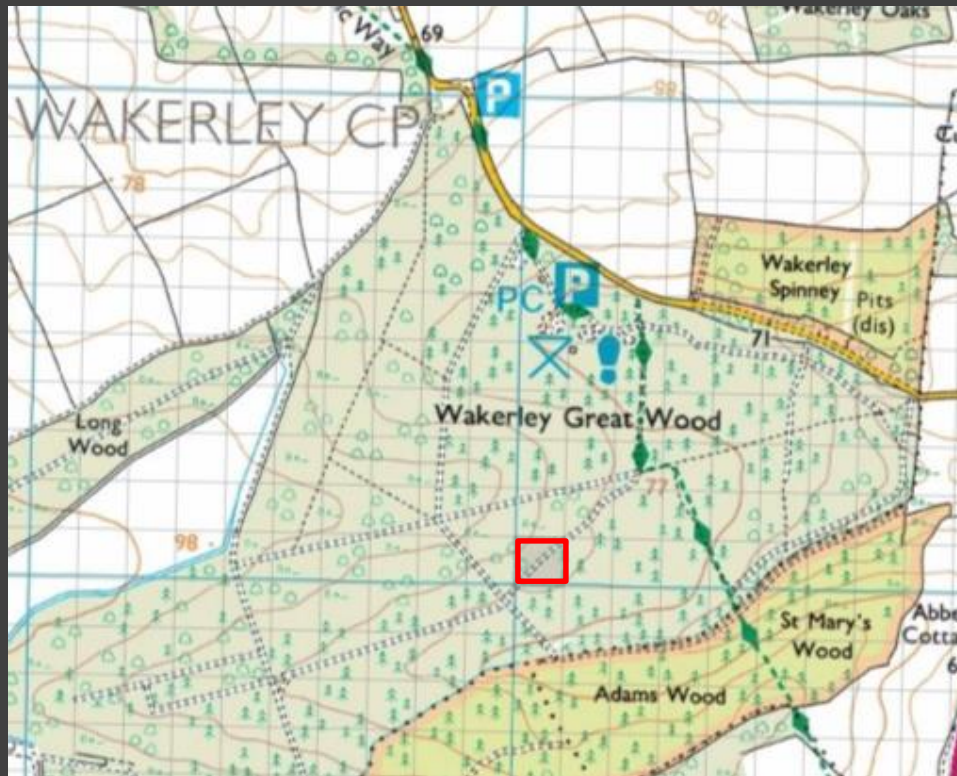
Occasionally the grid ref did not match the site name. In such instances the site name was thought the better bet, often resulting in a large area of search and a poor refind rate



Hordelymus europaeus; Bedford Purlieu;
TL0298

Problems with grid references

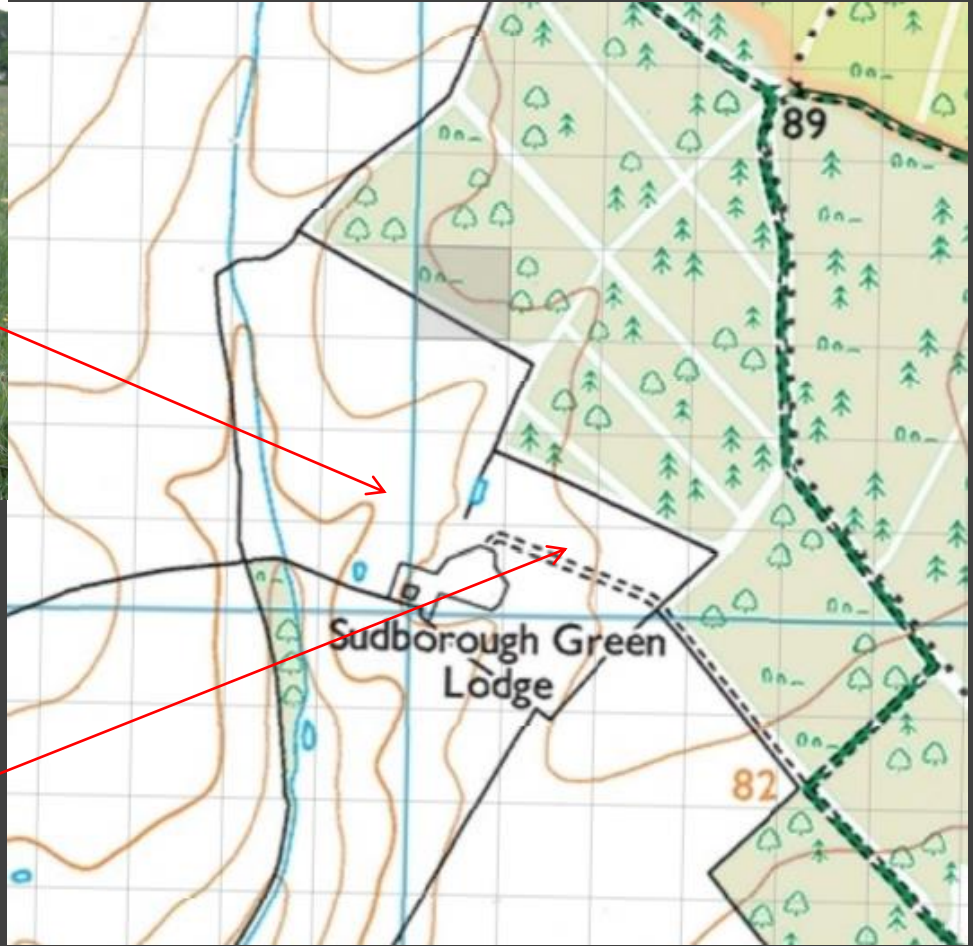
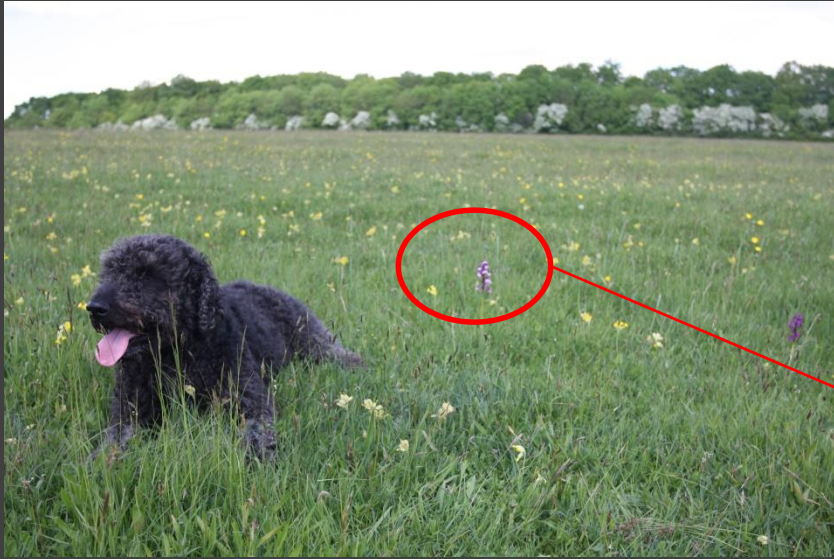
For one site containing multiple RPR historic records, the grid ref provided related to the bottom left corner of the square, effectively making it a 1 km² ref

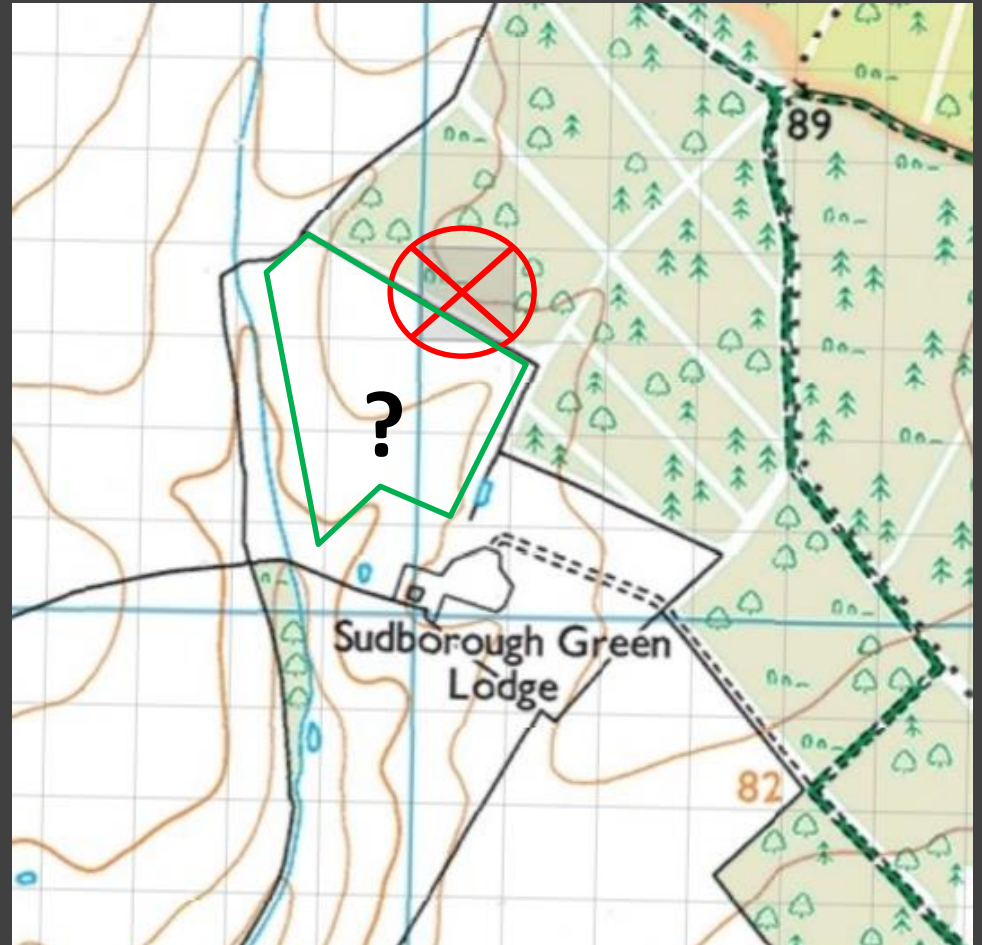


Aquilegia vulgaris
Helleborus foetidus
Hordelymus europaeus
Lathraea squamaria
Ophrys insectifera
Poa humilis

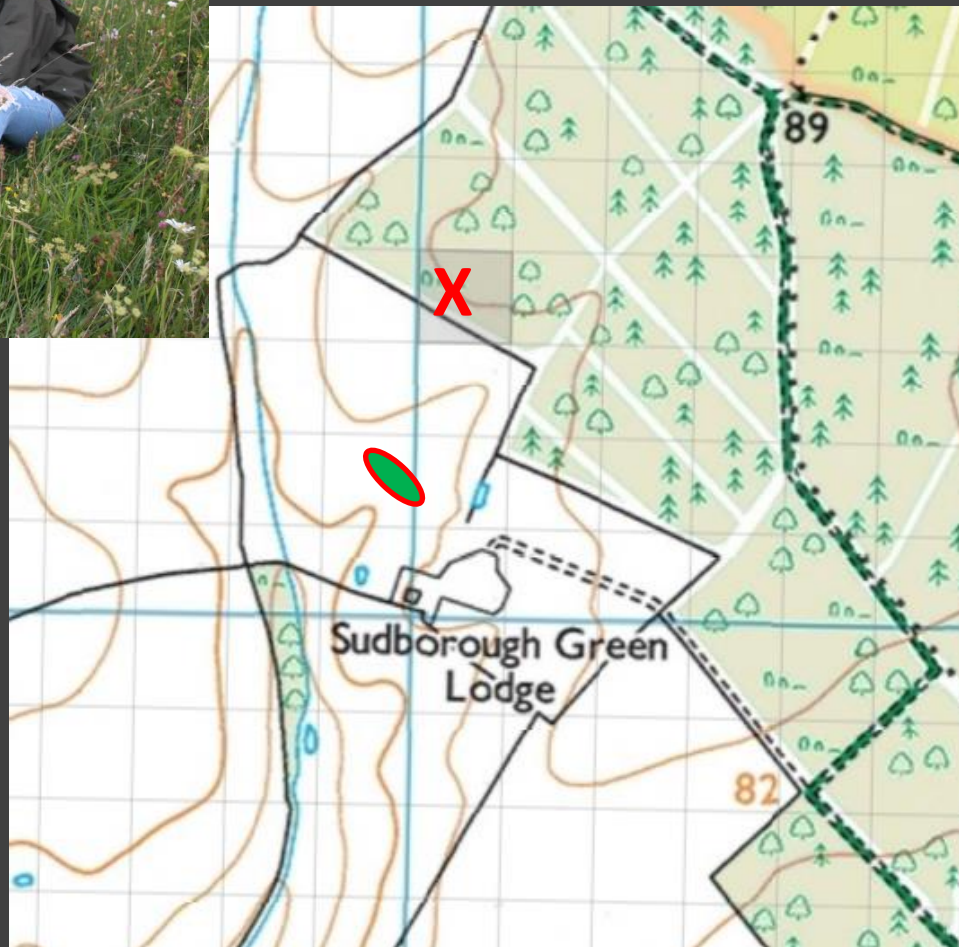


At times the six figure grid ref fell in an area that was unlikely, but not impossible, to have supported the target species in the recent past. In this case, a six figure grid ref, taken in 2006, was available for *Trifolium ochroleucon*

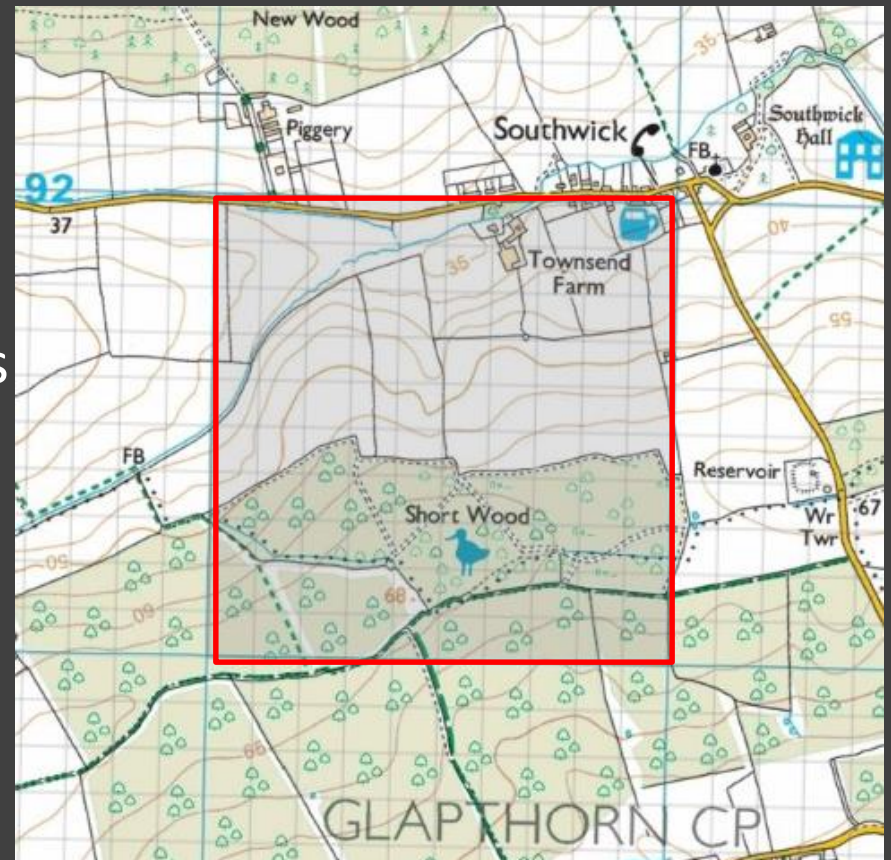








It was often useful to think about the route people might have taken, in addition to knowing details about habitat and ecology of the target species e.g. *Hordelymus europaeus* @ TL0191; edge habitat, high canopy (not deep shade), ancient woodland, esp. boundary banks





Annuals

- Some records are opportunistic, and some species have unpredictable or transient life histories
- 18 of the 45 null records were annuals, the majority of which were associated with arable land



Some are hard to spot even when right in front of you...



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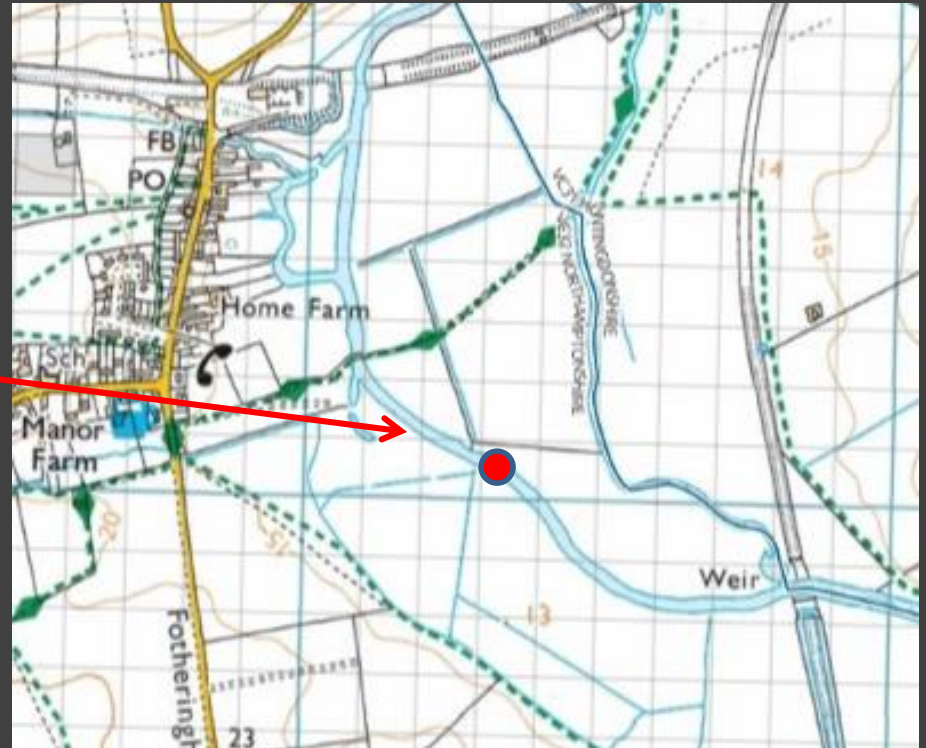


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Finding new records whilst searching for old...

Hydrocharis morsus-ranae – listed as ‘extinct’ in RPR –
whilst searching for *Oenanthe aquatica*



Finding new records whilst searching for old...

Myosurus minimus— only one other site, at a retail park in Northampton – found at Achurch Meadow (very restricted access)



...and new RPR sub-populations



Melica nutans



Melampyrum pratense



Scandix pecten-veneris

Conclusions

- I'd estimate that 'only' 13 null records - 17% of all records searched for - were almost certainly absent, due mainly to habitat degradation or destruction. Of these 13, 4 have a post-1999 record, with 3 lost due to development and 1 to lack of grazing.
- Perhaps as many as 32 of my 45 null records could be attributed to problems inherent with attempting to relocate a historical record, including the accuracy and scale of the record, and the 'detectability' of a species (and my competence, of course)

Detectability

When analysing change, there is an assumption that all species are equally detectable – they are not

When searching, and assuming high precision and accurate GR, if a species is present, how likely are you to find it?

- **Phenology** – species are more or less obvious with time
- **Size and colour of inflorescence**
- **Plant height**
- **Life history** (annual, etc.)
- **Typical abundance** (gregariousness)
- **Taxonomic complexity** (ease of identification)
- **Habitat accessibility** (lowland pasture vs. steep sided gorge)

Detectability

- Detectability, or 'Visual Apparency', has been used to help interpret trends for British Butterflies (wing colour, size, behaviour; Dennis et al. 2006)
- An understanding of detectability for plants would greatly assist with interpretation of trends for the Atlas
- We will be working on a simple method for scoring all British and Irish species
- Your comments & help during this process would be very welcome



Thank you

