

## Technology development and how it changes the ways we record wildlife

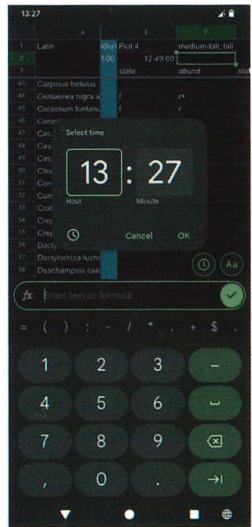
*Alla Mashanova*

With the advancement of technology, the use of paper cards to record wildlife is gradually becoming a relic of the past (at least for me). This is good because I used to spend a considerable amount of time digitising records after a productive day in the field. There is a variety of recording apps available, with iRecord being excellent for submitting individual records from any species group. In contrast, the BSBI app serves as a fantastic tool for botanical survey records, which automatically saves the grid references for each species. Both apps allow the uploading of photos and additional information, such as stage (e.g. flowering) and abundance, and have plenty of online documentation explaining how to use them. In some cases, however, I prefer to have a predefined species list ("a card"), especially when using quadrats or surveying units in the same area. This helps me to see which species from the list I missed. After experimenting with a few options, I have settled on using Google Sheets on my Android phone. In this note, I share my experience with Google Sheets and a few other useful apps.

### Replacing paper cards with Google Sheets

During the summer months, I regularly survey the Rough Hills grassland at Bayfordbury in 8 units with

varying mowing regimes. Until recently, I used printed A4 tables with the common species on the front page, allowing me to enter the common species quickly and to check for any missed common species in the field. The reverse side had only the grid, and I would add seasonal/unit-related species there as needed. I used to put the stage and abundance in the same column to keep the number of columns manageable. Now, I prepare the full species list in advance as a spreadsheet in Google Sheets, put the date in the name of the spreadsheet and make the file available offline so that I do not depend on the mobile phone signal. Now I enter the stage and abundance in separate columns during the survey. To mark the last completed column, I simply change the cell fill colour – a digital alternative to crossing out empty cells on paper. To track the time spent in each unit (also useful when matching photographs later), I format a row as "time" and get the current time when I begin entering the value. This saves me from manually typing the time (Figure 1). In other surveys, I revisit the same site during the season to record the first flowering date of each species. For this, I format a column as "date", which brings up a calendar when entering a value. One added benefit of using my mobile phone is that it is already in my hands if I need to take a photo – no need to set down a clipboard to reach for a camera. I tried using a tablet but returned to my phone because it is lighter and more convenient to carry. I have also learnt the trick of typing with both thumbs, which has noticeably sped up the process.



**Figure 1.** A screenshot showing entering the completion time for Plot 4 at Rough Hills. Note that the completed unit (column left of Plot 4) is marked as blue-grey to avoid entering any value by mistake. Clicking "OK" enters the value.



**Figure 2.** UK Grid Tools screenshot showing available formats and the copied value in the bottom left corner. The number of digits can be changed in Settings.

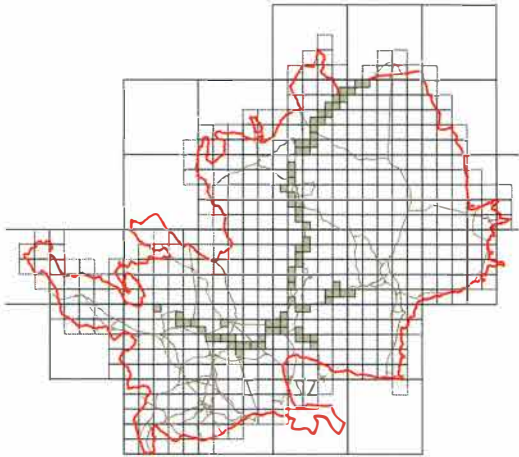
### Redwoods in Hook's Grove



**Figure 3.** A map of Redwood trees in Hook's Grove (Bayfordbury) exported from Google My Maps.



**Figure 4.** A snapshot from NextBase 412GW video record with Giant Hogweed in the road verge.



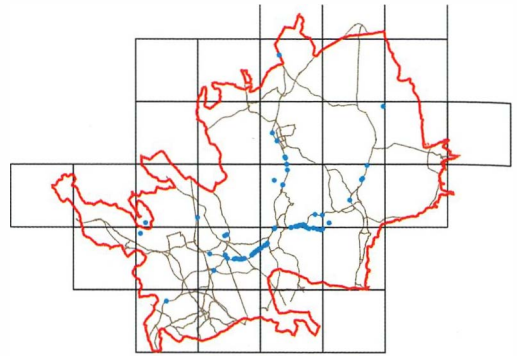
**Figure 5.** A map showing monads with Danish Scurvygrass (*Cochlearia danica*) recorded with NextBase 412GW during my routine trips in 2018-2021. The map was produced using QGIS.

### Recording location

I have not yet found a way to add location data in Google Sheets as seamlessly as date or time. It would be helpful if Google developed a “location” format. For now, I use the UK Grid Tools app, which allows me to copy-and-paste the grid reference – a much safer and faster method than manually typing it from the screen. A choice of formats is available (Figure 2). The OS Grid Reference (British National Grid format) is the best for general use and especially for producing hectad, tetrad, or monad maps. However, when I am going to make a detailed map (for example, trees in a small wood), I prefer WGS84 coordinates, because they are straightforward to use in Google My Maps. Figure 3 shows an example of a map of Redwood trees in Hook’s Grove (Bayfordbury). My Maps allows adding photos and additional information. The full interactive map, including individual tree images, can be accessed from the main <https://bayfordbury.org/> page and click Hook’s Grove.

### Using a Dash cam to record along the roads

Trying to retrieve the location of a plant spotted while driving can be frustrating, and attempting to park and walk back along the road is not always possible. So, I got a dash cam. Back in 2018, I chose NextBase 412GW, which imprints date, time, speed and location on each image. The location is recorded as latitude and longitude (in degrees and minutes), but there are many online tools to convert this into the British National Grid format. My current preference is the OS Coordinate Transformation Tool <https://www.ordnancesurvey.co.uk/geodesy-positioning/coordinate-transformations/tool>. Some of the more easily identifiable roadside plant species include



**Figure 6.** A map of road casualty mammals recorded with NextBase 412GW during my routine trips in 2018-2019. The map was produced using QGIS.

Danish Scurvygrass, Mistletoe, Oil-seed Rape, Cherry Plum and Rhododendron (when in flower), Hemlock, Russian Vine and Giant Hogweed (Figure 4). Danish Scurvygrass (*Cochlearia danica*) has been spreading massively due to salt being added on our roads, and my map in Figure 5 reflects where I go rather than where it occurs in Hertfordshire. While the plants are my primary focus (Mashanova 2021), I have also recorded animals (unfortunately, mostly as road casualties, though occasionally alive). The latter observations were contributed to the MARA project, with a snapshot my data from 2018-19 shown in Figure 6.

### ID apps

Another significant area to explore is the use of identification apps. There are many available, and their performance has been improving substantially every year. Hamlyn Jones reviewed the top-performing plant ID apps in 2020 (Jones, 2020), with follow-up comparison in 2023 and 2024, and concluded that while the accuracy has greatly improved, even the best apps still occasionally make mistakes (Jones, 2025). Jones (2025) puts Flora Incognito, PlantNet and iNaturalist at the top for plant identification. I have not personally used Flora Incognito, but I use PlantNet if I need suggestions for plant ID in Herts. One useful feature of PlantNet is the ability to search within ‘Useful Plants Flora’, when you suspect a garden escapee. ObsIdentify is also a good app for a broad range of species, but the developers specifically ask users not to submit garden plants or captive animals. I find iNaturalist useful when travelling outside the UK, as it provides community feedback on identifications. That said, bear in mind that a Research Grade simply means that two or more users agreed on the identification, not that it is necessarily correct. I have had a few cases where local experts disagree with Research Grade IDs. So, my approach is that these are great tools, but always check that the suggested ID makes sense. Also, do not forget that even an accuracy