Shropshire Botanical Society Online Flora
Web application Specification

Joe J Collins

30th October 2020

Overview

The Shropshire Botanical Society is seeking to renew it's Online Flora web application. This specification out lines the hoped for functionality together with the technical and development constraints of the work.

Contents

1 Background

The Shropshire Botanical Society has been dedicated to promoting the enjoyment, understanding and conservation of the flora of Shropshire since the 18th century. One of the principle activities of the Society is to collect and maintain records of plant sightings within the historical boundaries of the county of Shropshire. Since 2003 the Society has made these records freely available online via a bespoke web application or Online Flora. This original Online Flora was written using PHP and the CodeIgniter Web Framework backed by a MySql database. The web application is still available at captain-blue.azurewebsites.net but unfortunately the data is now many years out of date.

Maintaining and updating the database has proved to be challenging. Additionally the application was conceived prior to the introduction of the iPhone and it not suited to mobile use. Hence the Society seeks to renew the web application, to provide a more modern mobile interface and to use up to date data stored by the National Biodiversity Network Atlas. Currently all the Society's records are submitted to the National Biodiversity Network Atlas and since 2017 the Society's records have been available via a web service at the NBN Web service API. Using the NBN Web service API provides reliable data source and a supported service for maintaining and updating the Society's records.

2 Objective

To replicate the functionality of the original Online Flora in a responsive mobile design using data sourced from the NBN Web service API.

3 Usage and Users

The Online Flora is used for searching the Society's records but not for entering new records. Maintaining and updating the data is conducted via a separate manual process. Searches of the database are conducted for three different geographical scenarios.

Search Shropshire searching all the records of based on the name of the plant. Allowing the user to drill down to a single sighting record or showing a map of grid squares with records for a named plant.

Search by Site searching for a named site, then listing the names of plants for that named site. Again allowing the user to drill down to a single sighting record.

Search by Monad or Grid Square Selecting a 1 km grid square within the county of Shropshire, then listing the names of plants for that named site. Again allowing the user to drill down to a single sighting record.

Users of the Online Flora are typically members of the Society and as such are often very experienced botanists and will favour

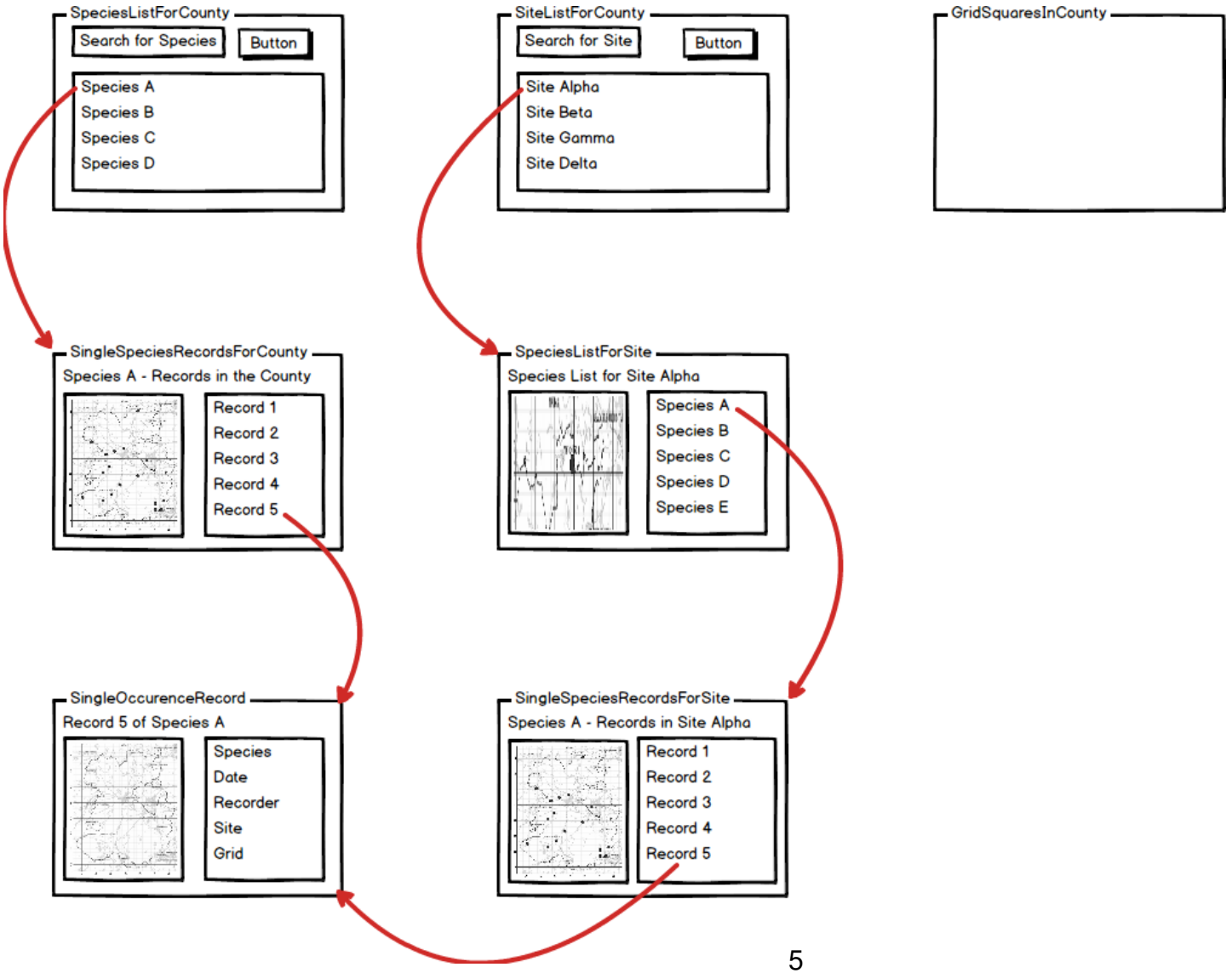
identifying plant species via the scientific name. A typical scenario would be a member of the Society intending to visit a location would search for a list of plants that have previously been sighted at that location. A similar search might also be conducted at the location of interest using a mobile phone. Up to this time the Society has not offered an interface that is suitable for mobile phone use. As a result there is no information about the types and sizes of the devices that might be used. However the Society does maintain a blog/website at www.shropshirebotany.org.uk. The majority of visitors to the site use Google Chrome on a Windows platform.

4 NBN Data

The Society's records exist within the Shropshire Ecological Data Network records. This dataset includes records from other recording groups in Shropshire.

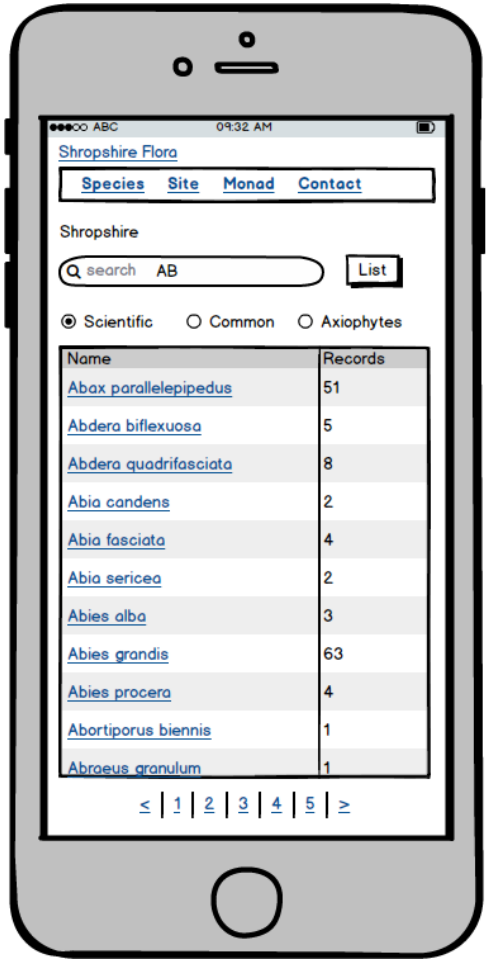
Cache NBN data for a month, if valid json. Data turn over is slow the the NBN API can be laggy.

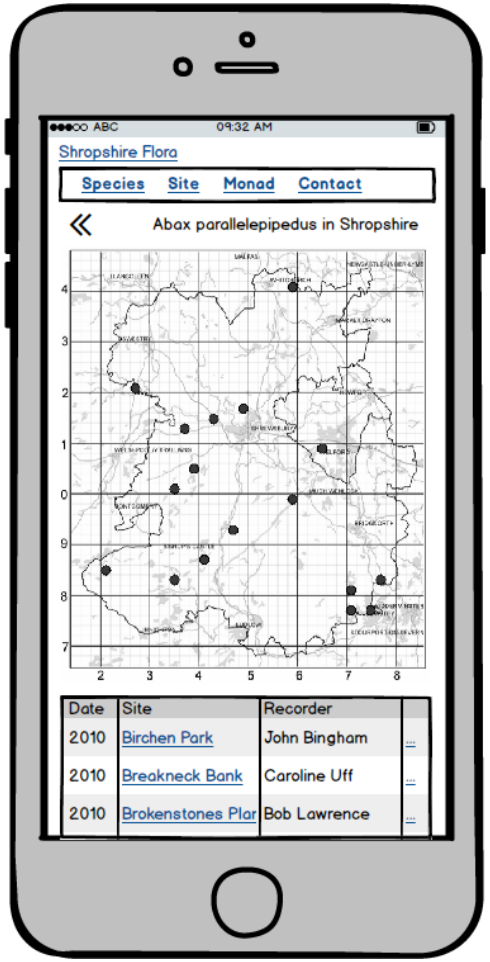
5 Overview

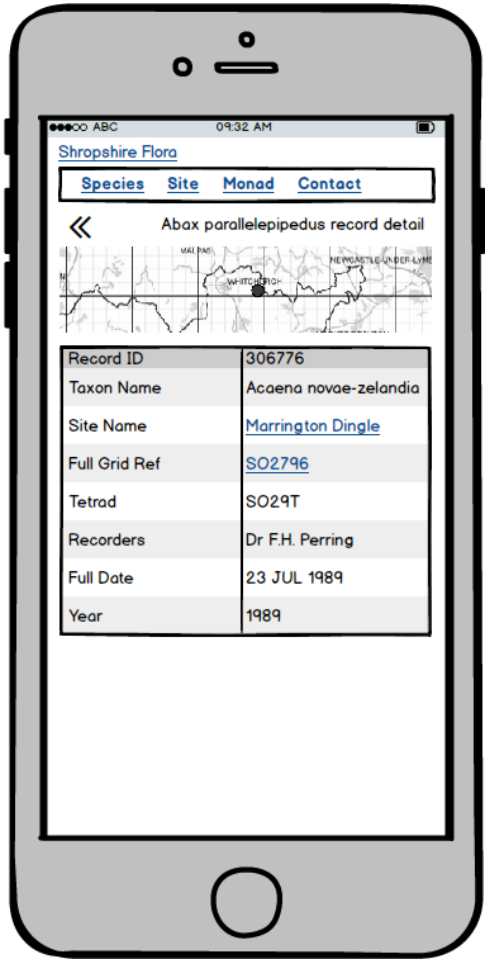

SpeciesListForCounty
Search for Species
Button
Species A
Species B
Species C
Species D
SiteListForCounty
Search for Site
Button
Site Alpha
Site Beta
Site Gamma
Site Delta
GridSquaresInCounty
SingleSpeciesRecordsForCounty
Species A - Records in the County
Record 1
Record 2
Record 3
Record 4
Record 5
SpeciesListForSite
Species List for Site Alpha
Species A
Species B
Species C
Species D
Species E
SingleOccurenceRecord
Record 5 of Species A
Species
Date
Recorder
Site
Grid
SingleSpeciesRecordsForSite
Species A - Records in Site Alpha
Record 1
Record 2
Record 3
Record 4
Record 5

6 Search County by Plant Name

6.1 Mobile







6.1.1 Mobile Species Search

The 'landing' page for the application is the search of the entire dataset for the county.

- By default the **Scientific** name selected first.
- On landing the selected list is empty.
- The characters entered in the search box are used to search for names begining with those letters, not within the names.
- Clicking on **list** or pressing return on the desktop list will fill the list.
- If **Common** is selected, only the species with common names will be searched and shown.
- If **Axiophytes** a limited static list of scientific names will be searched and shown.
- Changing the radio button will reset the search and blank the list.

e.g. [1]

6.1.2 Mobile Species Dot Map

Clicking on a species name will show details for the

- Collapse the map? Retain state in cookie
- Page the records?
- Site link goes to what?

6.1.3 Mobile Sighting Record

[1] https://records-ws.nbnatlas.org/explore/group/Plants?fq=data˙resource˙uid:dr782+AND+taxon˙name:B*

6.2 Desktop

Shropshire Online Flora...

http://flora.shropshirebotany.org.uk/

Find a Species | Find a Site | Find a Monad | Contact

Enter all or part of a name

search | List Species | ◉ Scientific Names | ○ Common Names Only | ○ Axiophytes Only

Try something like "Hedera"

Family	Scientific Name	Common Name	Records
Carabidae	Abax parallelepipedus		51
Melandryidae	Abdera biflexuosa		5
Melandryidae	Abdera quadrifasciata		8
Melandryidae	Abia candens		2
Melandryidae	Abia fasciata		4
Melandryidae	Abia sericea		2
Pinaceae	Abies alba	European Silver-fir	3
Pinaceae	Abies grandis	Giant Fir	63
Pinaceae	Abies procera	Noble Fir	4
Pinaceae	Abortiporus biennis	Blushing Rosette	1
Pinaceae	Abraeus granulum		1

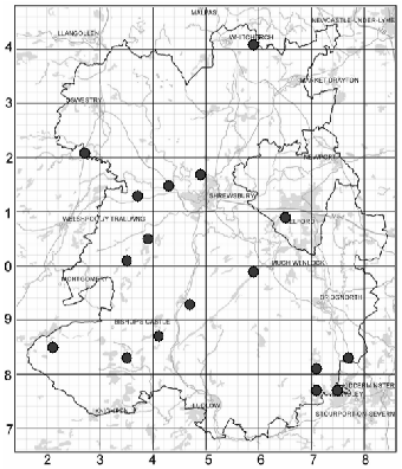
< | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 >

Shropshire Online Flora...

http://flora.shropshirebotany.org.uk/

Find a Species | Find a Site | Find a Monad | Contact

« Abax parallelepipedus in Shropshire



Date	Site	Recorder	
2010	Birchen Park	John Bingham	...
2010	Breakneck Bank	Caroline Uff	...
2010	Brokenstones Plantati	Bob Lawrence	...
2010	Clee Hill	G.Wenman	...
2010	Ercall Quarry	Caroline Uff	...

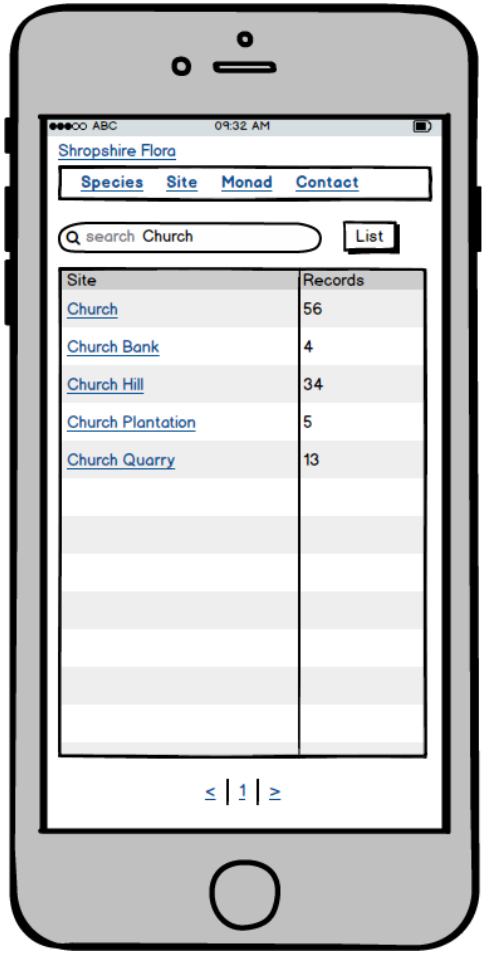
6.2.1 Desktop Species Search

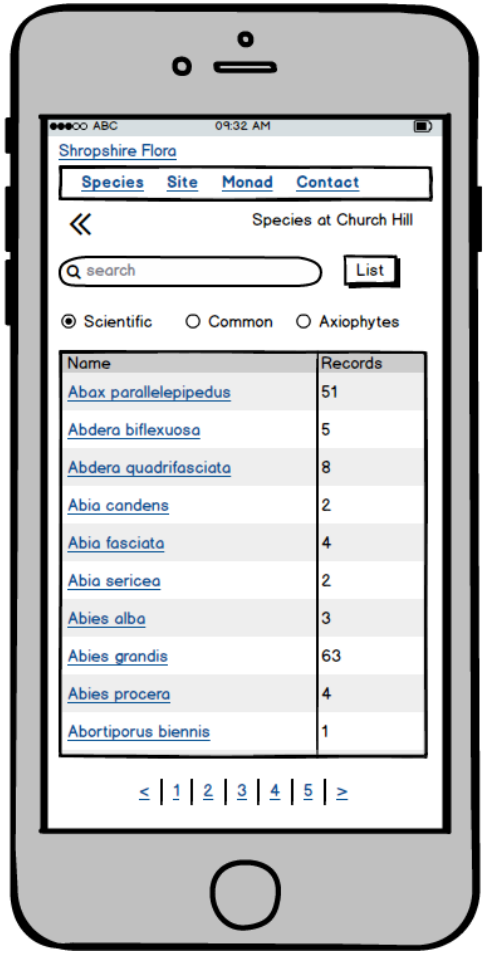
6.2.2 Desktop Species Dot Map

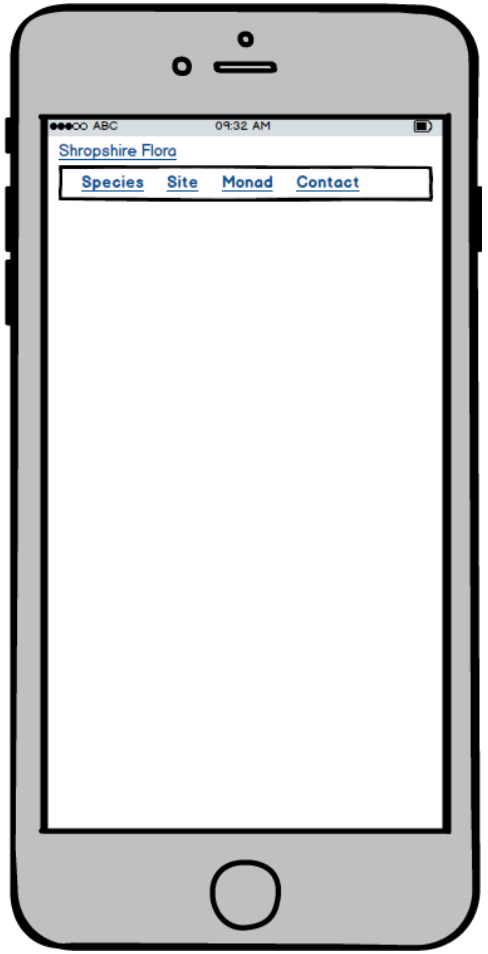
- Map does not collapse.

7 Search by Site

7.1 Mobile







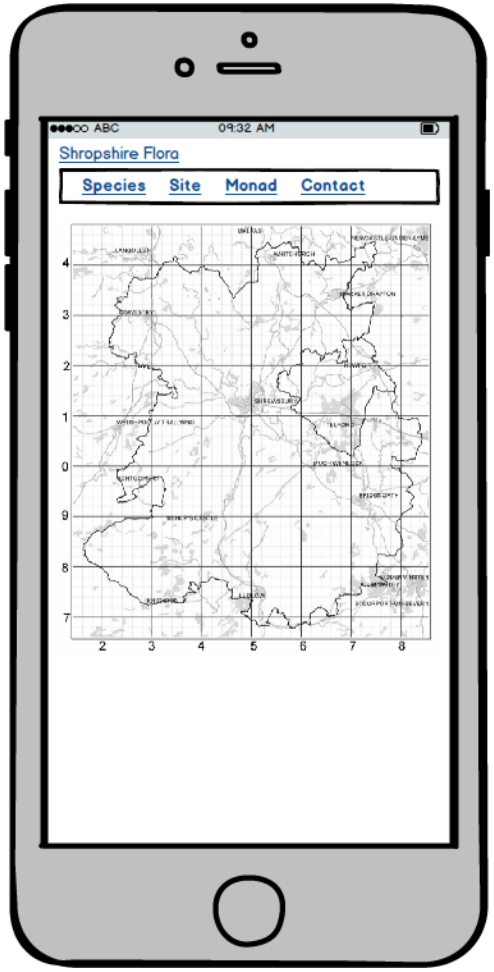
7.1.1 Site Search

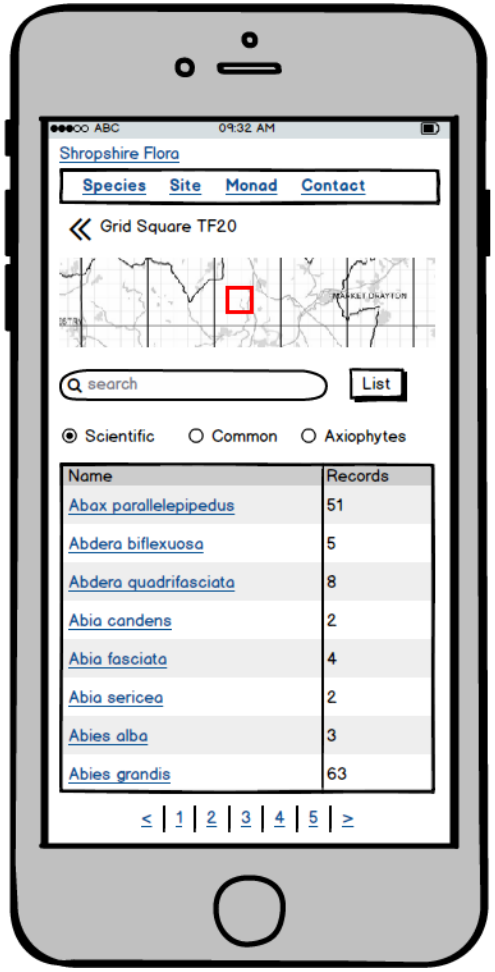
- On landing the site list is empty.

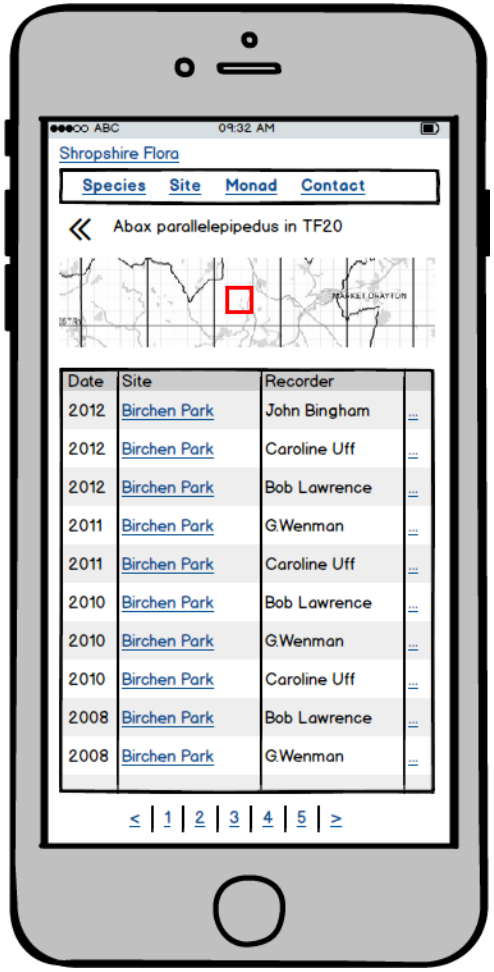
e.g. `https://records-ws.nbnatlas.org/occurrences/search?fq=location_id:[Church%20TO%20*]&fq=data_resource_uid:dr782&facets=location_id&facet=on&pageSize=0`

8 Search Grid Square by Plant Name

8.1 Mobile







9 Technical Constraints

The Botanical Society has limited means and wishes to ensure that the results of any programming effort can be maintained and supported into the future.

PHP 7.3 for deployment to Google App Engine.

CodeIgniter 4.0.4 has been used successfully in the past and provides convenient caching should it be required.

Twitter Bootstrap 4.5.2 for responsive layout.

Leaflet 1.6.0 should be used to provide mapping services. https://github.com/DuncanRowland/NBNMapOverlayExamples

Commits to Github since the Society will retain the intellectual property rights over any code produced. So all branching should be on the repository at at Github The Society will

Style Sheet taken from www.shropshirebotany.org.uk. The Online Flora is to be consistent with this website, so should reuse the same classes and styles.

No API Calls from the Client because we might want to use caching.

No database should be used other than the NBN Web service API. Any static data (such as the list of Axiophytes) should be hard coded into the application.

10 References

NBN Atlas Query Primer.

Easy Map

e.g. example

Map NBNMapOverlayExamples

e.g. Scotland

Cornish Biodiversity Network

https://docs.nbnatlas.org/

https://www.naturespot.org.uk/species/lesser-bulrush

http://www.cornishbiodiversitynetwork.org/xyz/Getspecies.php