Mobile App Requirements

1. Field Guide Expansion

A major expansion to the existing species field guide, which currently only includes alpine flowers, to include all plant species found at Niwot Ridge.

1.1 As a user I would like to have access to all of the species in the Niwot Ridge area
- 1.1.1 The new species will be included in a .CSV file
- 1.1.2 The data shall be stored in a MySQL Database
- 1.1.3 The entries shall contain images of each plant species

1.2 As a user, I would like to view a list of all species in the Niwot Ridge Area
- 1.2.1 The field guide shall be accessible from the home screen of the app
- 1.2.2 The field guide shall be accessible from the side-panel on every screen
- 1.2.3 The list shall display the names of all the plant species
- 1.2.4 Each item in the list shall be selectable
- 1.2.5 Upon selecting a species, the app shall navigate to another screen

1.3 As a user, I would like to view more information on each species
- 1.3.1 The app shall navigate to a new screen upon selection of species
- 1.3.2 The screen shall display information on the species
- 1.3.3 The screen shall display an image of the species
- 1.3.4 The screen shall include a button to allow users to upload a sighting of the species
- 1.3.5 The screen shall include a button to allow users to view the locations of other sightings of the species
- 1.3.6 The screen shall include a button to allow users to go back to the list of species

1.4 As a user I would like each plant species to have tags associated with it
- 1.4.1 New tags shall be included in a .CSV file
- 1.4.2 The tag information shall be stored in a MySQL database
- 1.4.3 Parent family tags shall be included, allowing for refined searching

2. Additional Set of Search Filters

An additional set of search filters so users can quickly find any species in the new species field guide

2.1 As a user I want to search for plants by filter

- 2.1.1 The filters shall be included in a .CSV file
- 2.1.2 The filters shall be stored in a MySQL database
- 2.1.3 A filter menu shall be selectable from the field guide screen
- 2.1.4 The user shall be able to select one or more filters
- 2.1.5 The list of results shall update with each filter selection
- 2.1.6 The updated list shall only display the flora that satisfy the selected filters
  - 2.1.6.1 If no flora satisfy the filters, "No Flora Found" shall be displayed

2.2 As a user, I would like to be able to select "Exclusive Filters"

- 2.2.1 The exclusive filters shall be included the MySQL database
- 2.2.2 The exclusive filters shall be selectable prior to the selection of other filters
- 2.2.3 The list of filters shall update to only show filters relevant to the selected exclusive filter, after an exclusive filter is selected.

3. GPS Observations

A new option to upload a GPS observation for any of the species in the field guide by users, instead of just the option to upload moss campion observations. A 'researcher verified' function available to public researchers, instead of just the development team, will ensure that the species observations uploaded are either uploaded by researchers themselves or verified by a researcher post-upload.

3.1 As a user, I would like to be able to record observations of plant species to add to researcher data

- 3.1.1 The plant species shall be stored in the MySQL database
- 3.1.2 The plant species shall be found using filters
- 3.1.3 The phone's camera shall be used to take a photo for the observation
- 3.1.4 The application shall display a prompt asking if the the picture is good or if the user would like to retake the photo
- 3.1.5 The observations shall store a GPS location & accuracy & date & user name
- 3.1.6 The observations shall store a comment from the user

3.2 As a user, I would like to be able to sync my recorded observations so they can be viewed online

- 3.2.1 The app shall check for a signal to communication with the database
  - 3.2.1.1 The user shall be able to change the strength/type of signal from the settings
- 3.2.2 When a signal exists, the recorded observations shall be uploaded to the database
- 3.2.3 After syncing, the recorded observation shall be marked as "synced" in the database
- 3.2.4 The sync status of all of the user's recorded observations shall be displayed to on one screen.

4. Species Distribution Maps

The development of species distribution maps based on uploaded observations that allows users to navigate to species of interest with the app.

- 4.1 As a user, I want to be able to view where specific species have been located in the NIWOT area
  - 4.1.1 The distribution maps shall be accessible from the field guide
  - 4.1.2 The distribution maps shall be downloadable when connected to the internet
  - 4.1.3 The distribution maps shall be stored in a MySQL database
  - 4.1.4 The distribution maps shall be updated when a new species observation is recorded and the user has internet connectivity
  - 4.1.5 The distribution maps shall have pinned locations of specific species
    - 4.1.5.1 Verified species shall be pinned blue
    - 4.1.5.2 Unverified species shall be pinned red
- 4.2 As a user, I want to be able to click on a species location and show me directions to that species
  - 4.2.1 The distribution maps shall show a straight line from the user's location to the location of the species
  - 4.2.2 The distribution maps shall display the distance to the species
  - 4.2.3 The distribution maps shall show a picture of the species when in range

5. Use of a Database

The development of a database to store all of the species information, *observations*, filters, pictures, maps, etc.

5.1 As a user I would like the database to be accessible from iOS, Android, *and web* platforms.

- 5.1.1 The data shall be stored in a central database | TBD
- 5.1.2 Each device shall be able to talk to the central database when connected to the internet
- 5.1.3 A locally stored database shall allow for access with no internet connectivity

5.2 As a user, I would like to be able to store data in the database using any supported device

- 5.2.1 The user's observation shall first be stored locally
- 5.2.2 When the user's device is connected to the internet, the observation shall be joined in the central database
- 5.2.3 The observations shall be stored in the observations table, ready to be verified by a researcher
- 5.2.4 Researchers shall be able to input data from a .CSV file, to expand the plant types and observations in the field guide

5.3 As a user I would like to be able to request and retrieve data from the database

- 5.3.1 The user shall be able to request data from the database with internet connectivity
- 5.3.2 A field guide search request shall search the field guide table and return values that match the given filters
- 5.3.3 A species observation request shall search the observations table and return all confirmed/unconfirmed observations of the species
- 5.3.4 A user request shall search the database for user data and return it for use in the account page

6. Account Management

The ability to manage account information from both the app and the website.

6.1 As a user, I would like to be able to create an account so I can use the application

6.1.1 Upon starting the app, the app shall display a screen with two options: Log In and Sign Up & continue as guest

6.1.2 The app shall navigate to the account creation page when the "Sign Up" button is pressed

6.1.2.1 The account creation page shall include username, password, confirm password, and email address fields

6.1.2.2 The app shall check the database to see if a username is taken and print a message if it is

6.1.2.3 The app shall check password complexity

6.1.2.4 The app shall send a confirmation email upon successful account creation

6.1.3 If all the criteria are met, the database shall create a new entry for the user

6.1.4 Upon account creation the app shall navigate to an "Account Created" page

6.2 As a user, I would like to be able to sign in to my account

6.2.1 Pressing the Log In button shall navigate to the log-in page

6.2.1.1 The log-in page shall display a username/email field and a password field

6.2.1.2 The text entered in the field shall be searched for in the database

6.2.1.2.1 If the entry doesn't exist, the app will display a failed log-in message

6.2.1.2.2 If the entry exists, the app shall log the user in

6.2.2 Successful log-in shall navigate to the main menu of the app

6.3 As a user, I would like to be able to reset my password if I forget it

6.3.1 Pressing the Forgot Password button shall navigate to the Forgot Password screen

6.3.1.1 The Forgot Password screen shall display an email field

6.3.2 The text entered in the field shall be searched in the database

6.3.2.1 If the entry exists, an email shall be sent with a new password

6.3.2.2 If the entry doesn't exist, an invalid email message shall display

6.3.3 Pressing the change password button shall navigate to the Change Password screen

6.3.3.1 The Change Password screen shall display old password, new password, and confirm new password fields

6.3.3.2 If the old password is valid, and the new password fields match, the password shall be updated in the database

Settings => incorporate "Account" here

7.1 Sync Settings / My observations - Data Base Update

7.2 Topo Maps

7.3 Notifications

7.4 Privacy

7.5 Login Status

7.6 Help

7.7 ↳ contact email

Sign: D. Arnold Date: 10/18/16