

# Usability Testing Plan

Herp Atlas Project – Team Frog Finders

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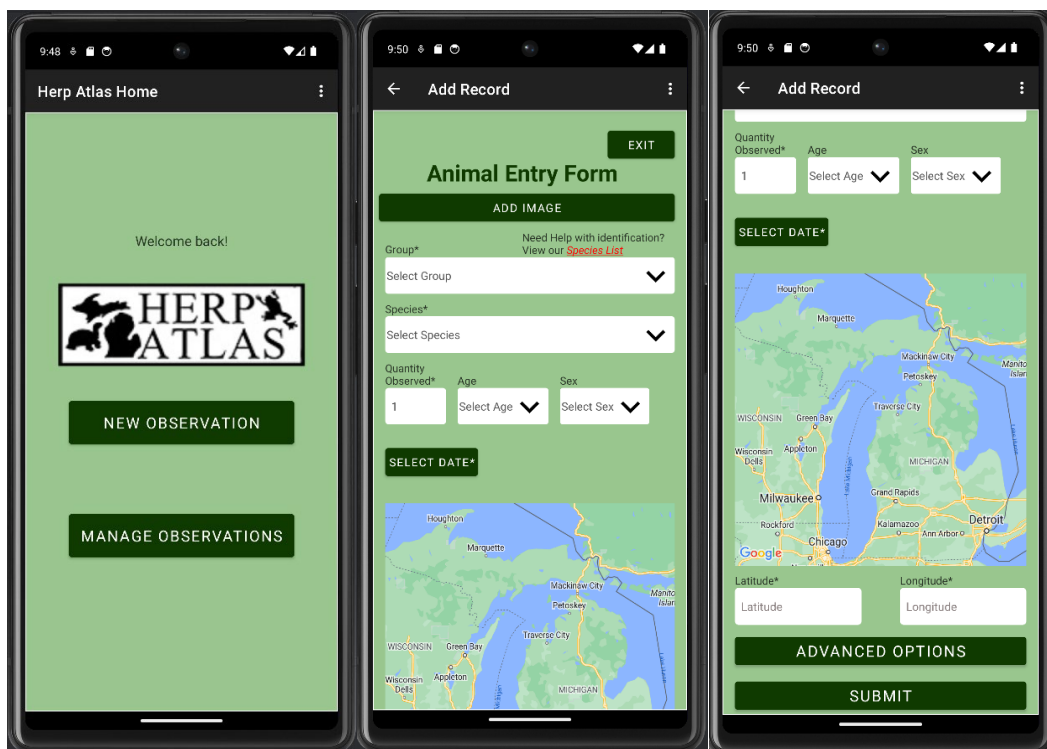
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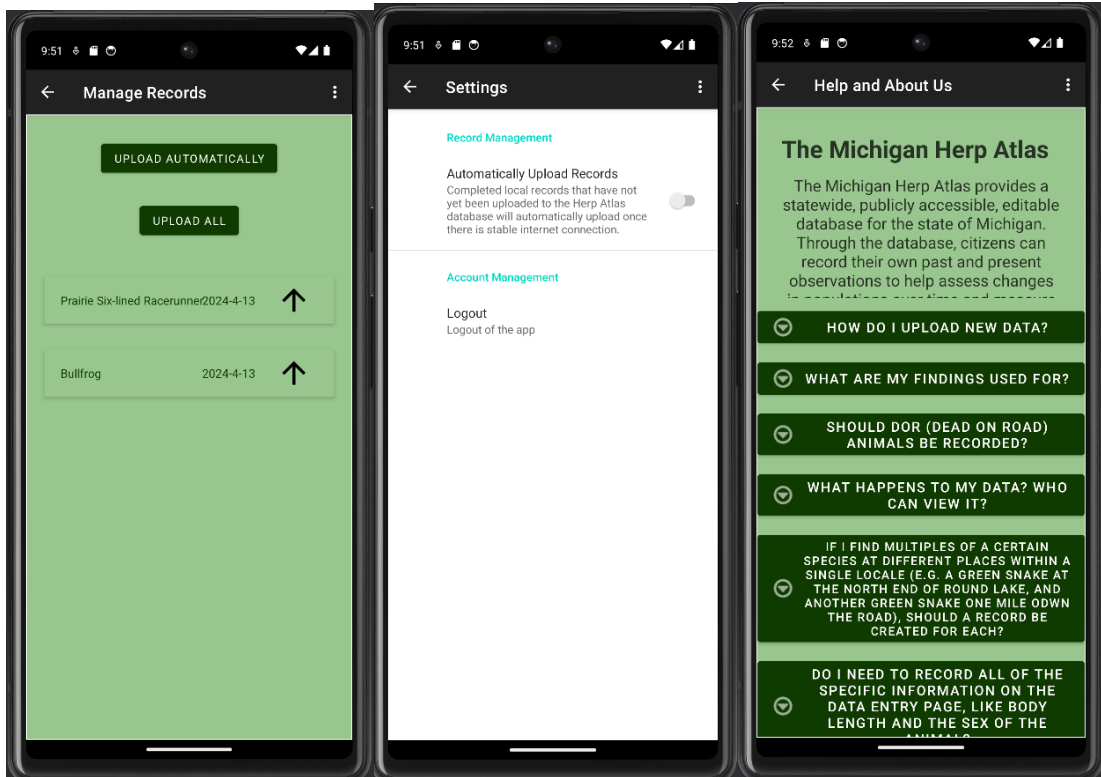
## Introduction

This report presents the results of testing Herp Atlas. Herp Atlas is an Android app designed to assist with herptile conservation efforts in the state of Michigan. There are two main features of this app: creating an observation and editing an observation. Uploading the complete observations to the Herp Atlas database is a future implementation feature and is not tested here. However, the ability to modify upload settings is tested.

The user interface of the app consists of three main screens: the home screen, the create observation form, and the manage observations form. There is also a settings screen and a help screen, which contains information about the Herp Atlas project. These screens are shown in the following screenshots:



Home screen and Add Observation screens.



Manage Observation, Settings, and Help screens.

The main goals of this testing were to evaluate the ability to make and edit observations. Two testing scenarios were created, one for each of the main features. In the first scenario, participants were tasked with submitting a complete observation (i.e., all the required fields are filled out) and saving an incomplete observation (i.e., some required fields are missing and need to be filled out later). The second scenario tasked participants to finish the incomplete observation and change the settings to allow for automatic uploads of completed records.

The goal of this testing was to validate the two main features, ensuring that users are able to make observations and edit them. As this app is still in the prototype stage, validation of the main functionality and gathering data on the overall app design is most critical at this stage. Further usability testing will be required to evaluate the finer details of the application's user interface.

# Testing Plan

## Pre-task Script

Welcome! My name is Blade Frisch, and I'm conducting this usability test today. Before we get started, I want to give you this consent form and explain a little of what it means. There is no known risk or cost to participating in this testing, no identifying information is collected by us, and only the professor of your class and Dr. Pastel, the professor of our class, have access to any identifying information. If you are okay with this and wish to continue to participate, can you give your verbal consent? If you are not okay with this or change your mind during any part of the testing, just let me know and we can end this testing and your information will be discarded.

Great, thank you! Before we get started, I just have a couple of background questions for you.

Thanks for answering these! The app we are testing today is an Android app that is designed to collect information on herptile, or amphibians and reptiles, sightings and about in the state of Michigan. Now, I'm going to give you a couple of scenarios and ask you to complete some tasks.

## Pre-task Questionnaire

- Have you ever used a smart phone before? If so, for how many years?
  -
- What is your previous experience using mobile apps?
  -
- Have you used an Android device before? If so, for how many years?
  -
- What is your previous experience using Android apps?
  -
- Do you know what a herptile is?
  -
- Do you ever go out for walks or hikes? If so, what kind of places do you typically visit?
  -

## Scenario 1 – Record a Herptile

- **Scenario Description:**
  - You have recently heard about Herp Atlas, a mobile app that lets you record details about any amphibians or reptiles you see outside, and decide to give it a shot.
- **Quantitative Measurements:**
  - Quaternary success – failed with no help, failed with help page, made observation with help page, made observation with no help
  - Number of attempts to submit
  - Number of required fields missed
  - Number of edits to form
- **Goals:**
  - Evaluate the ability to make an observation
  - Determine if/how the users will search for help within the application

### Task 1

- You've downloaded the app before going on a walk in the local park and you see a frog next to a pond while on your walk. You want to record this sighting in the app.

### Task 2

- You see another herptile as you're finishing your walk and want to start an observation to get the latitude and longitude, but you don't have time to finish the entire form and want to save the in-progress form to fill out later.

## Scenario 2 – Manage Previous Observations

- **Scenario Description:**
  - After using Herp Atlas a couple of times, you'd like to manage your complete and in-progress records and double-check your settings for record management.
- **Qualitative Measurements:**
  - Quaternary success – failed with no help, failed with help page, managed observations with help page, managed observations with no help
  - Number of navigation attempts
  - Number of attempts to submit
  - Number of required fields missed
  - Number of edits to form
- **Goals:**
  - Evaluate the ability to complete in-progress observations
  - Evaluate the ability to change the record management settings

### Task 1

- Now that you are home, you would like to complete the form that you began on your earlier walk

### Task 2

- You would also like to change the settings so that your records will automatically upload

### Post-task Script & Interview

Thanks for completing these tasks! Now, I want you to rate a few statements about the app on a five-point scale from Strongly Disagree to Strongly Agree. There is also a Not Applicable option if you feel that the statement does not apply to your experience.

Great, thanks for filling this out! Next, I want to ask you a couple of open-ended questions about your experience with the app.

- What did you like best about using the app?
  -
- What did you like least about using the app?
  -
- If you could change and/or keep anything about this app's design, what would it be? Why?
  -

Thank you for your answers! That is all we have for you today. Do you have any questions for me that I can answer now? If anything comes up, please feel free to contact Dr. Robert Pastel, who will make sure any questions are passed on to the appropriate person. Have a great day!

## Post-task Questionnaire

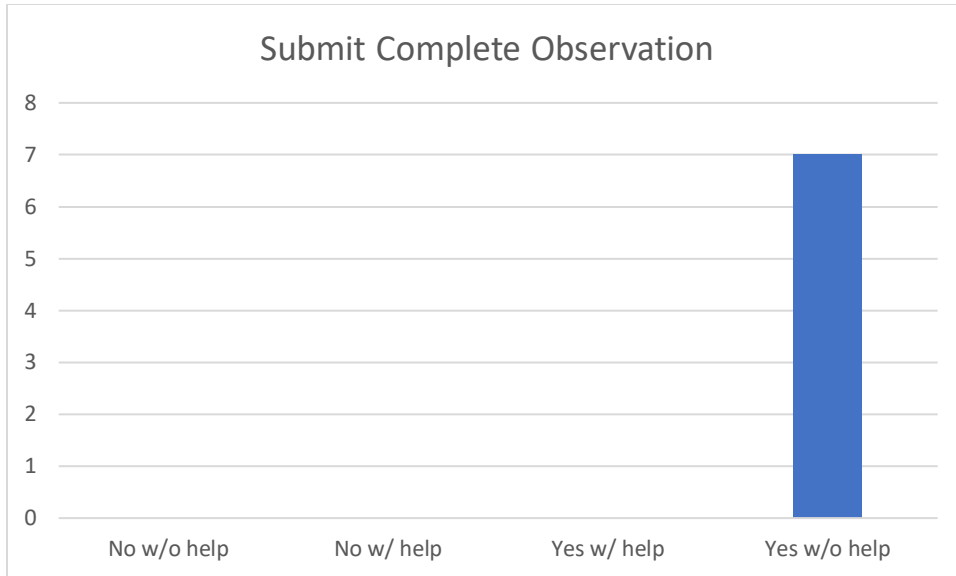
- I thought this system was easy to use:
  - Strongly Disagree
  - Disagree
  - Neutral
  - Agree
  - Strongly Agree
  - N/A
- I thought this system was simple to use:
  - Strongly Disagree
  - Disagree
  - Neutral
  - Agree
  - Strongly Agree
  - N/A
- The system gave error messages that clearly told me how to fix problems:
  - Strongly Disagree
  - Disagree
  - Neutral
  - Agree
  - Strongly Agree
  - N/A
- It was easy to find the information I needed:
  - Strongly Disagree
  - Disagree
  - Neutral
  - Agree
  - Strongly Agree
  - N/A
- The organization of information on the system screens was clear and well-organized:
  - Strongly Disagree
  - Disagree
  - Neutral
  - Agree
  - Strongly Agree
  - N/A



## Results

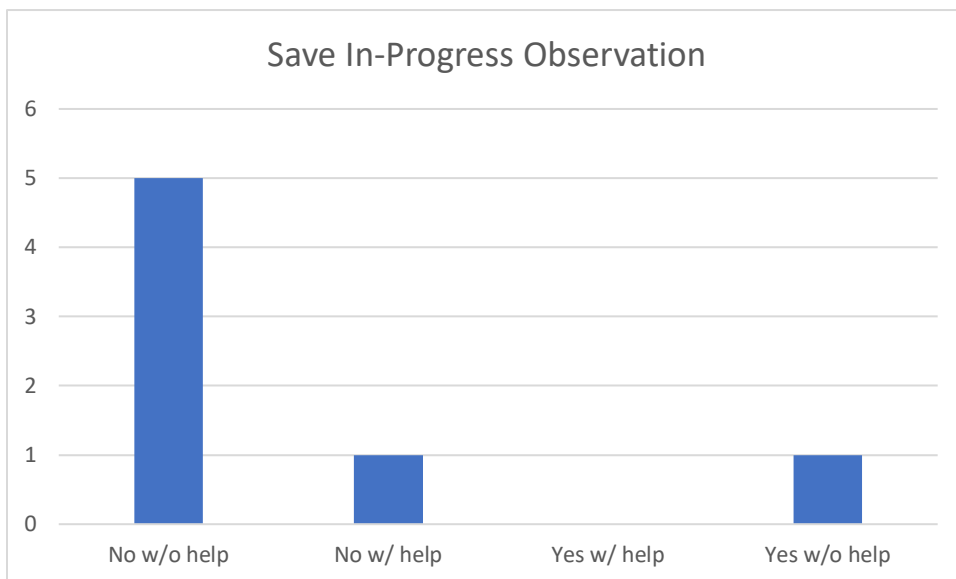
### Scenario 1

#### Task 1



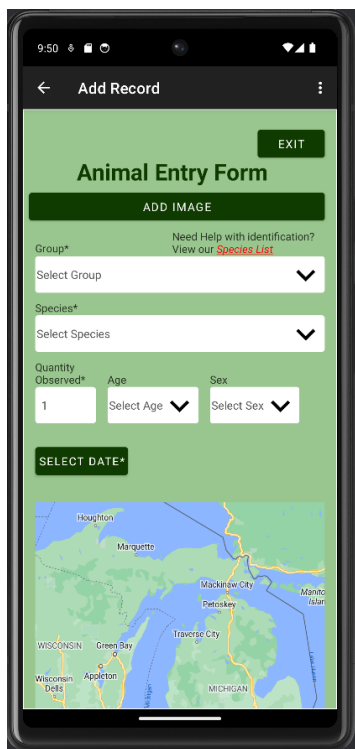
All participants were able to successfully complete this task without assistance from the help page. All participants did so in a single submit attempt and did not miss any required fields. Some participants, however, did fill out non-required fields.

#### Task 2



Only one participant was able to successfully complete this task. The remaining six participants would attempt to submit the form rather than save and exit the form, going back to fill out the

missing fields required to submit an observation. The current user interface implements the save and exit functionality with a button labeled “Exit” at the top of the form, which can be seen in the screenshot below. One participant who failed this task attempted to find guidance on the help page.



The screenshot shows a mobile application interface for adding a record. The title bar at the top reads "Add Record" with a back arrow on the left and a menu icon on the right. Below the title bar, there is a green header with the text "Animal Entry Form" and a small "EXIT" button in the top right corner. Underneath the header is a dark green button labeled "ADD IMAGE". The form contains several input fields: "Group\*" with a dropdown menu labeled "Select Group"; "Species\*" with a dropdown menu labeled "Select Species"; "Quantity Observed\*" with a text input field containing the number "1"; "Age" with a dropdown menu labeled "Select Age"; and "Sex" with a dropdown menu labeled "Select Sex". Below these fields is a dark green button labeled "SELECT DATE\*". At the bottom of the form is a map showing a region with cities like Marquette, Mackinaw City, Petoskey, and Traverse City, and state boundaries for Wisconsin and Michigan.

## Scenario Two

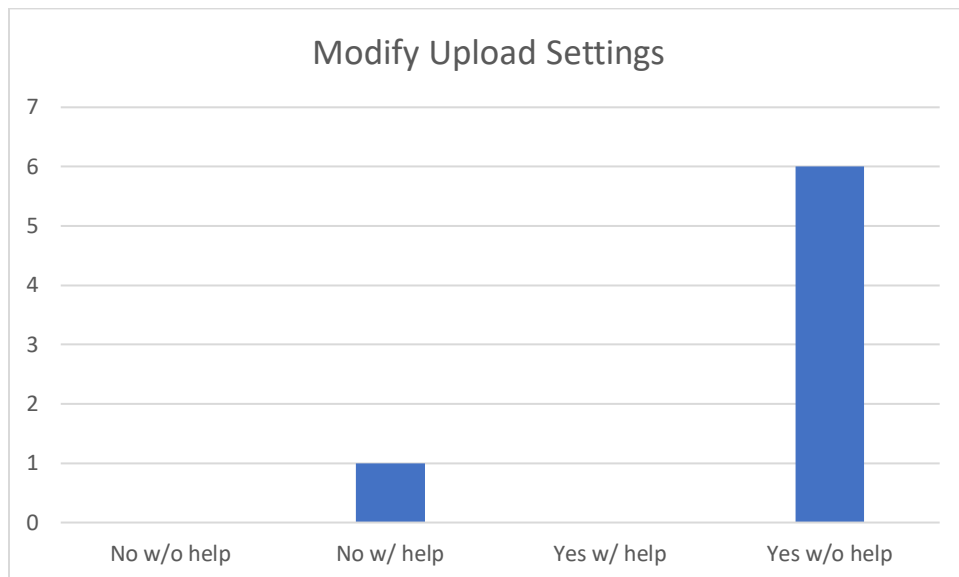
### Task 1



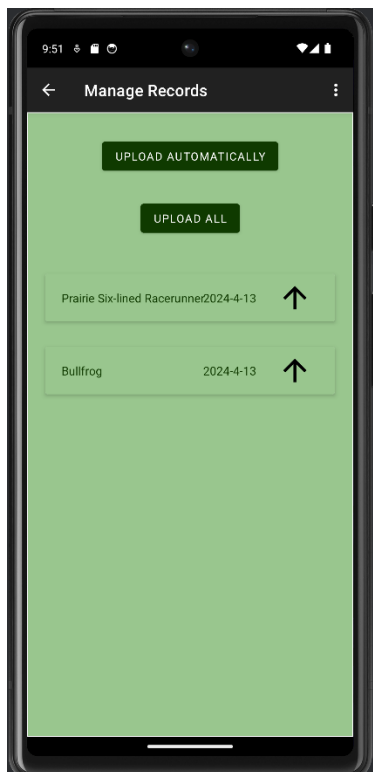
**Note: the first two participants were unable to perform this task because of bugs in the functionality. This task only has data for five participants.**

All participants were able to successfully edit an observation. However, all but one participant only had complete observations from the previous task (Task 2), and, therefore, made trivial edits to the form over completing an in-progress observation. This technically does not follow the letter of the task, but the spirit of the task is evaluating if users can edit observations, which all were able to do.

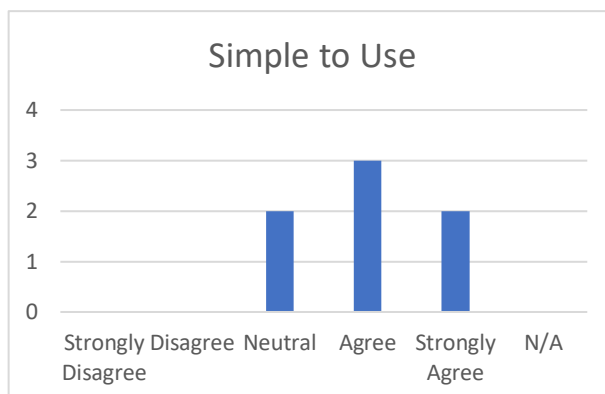
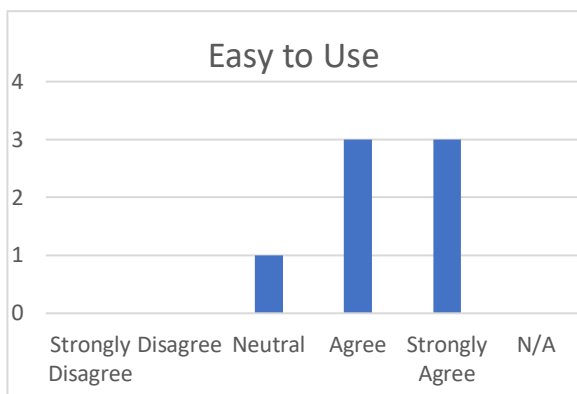
### Task 2



All but one participant was able to navigate to the settings page and modify the settings. There are two ways to navigate to the settings page: a dedicated button on the manage observations page (shown in the screenshot below) and an option in the overflow menu. The overflow menu is a standard interaction pattern on Android, and the participants who were able to successfully complete the task used this overflow menu. For the participant who failed the task, there was a bug in the dedicated button that prevented the navigation from occurring and the participant did not go to the overflow menu. They went to the help page to look for more information but, with none available, verbally stated they could not complete the task.



### Post-Task Questionnaire





Participants were given a Post-task Questionnaire to complete after completing all tasks where they ranked five statements on a five-point Likert scale. The participants overall found the app easy and simple to use and found the app to have a well-organized and clear design. However, there were mixed on the error messages and ability to find information. The implications and recommended solutions are discussed in the Conclusions.

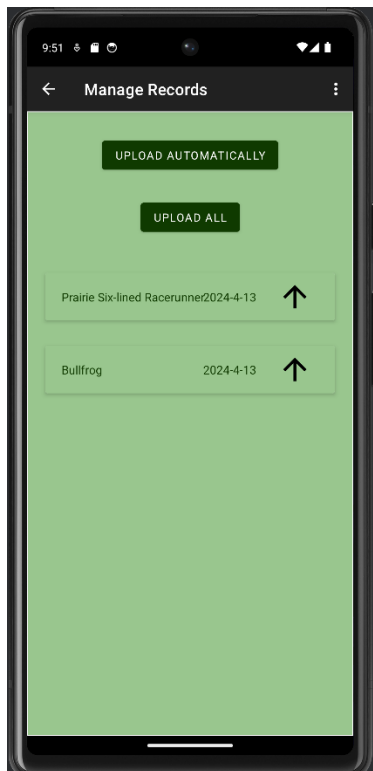
## Post-Task Interview

The participants were also given a Post-task Interview where they were asked three open-ended questions:

- What did you like most about using the app?
- What did you like least about using the app?
- If you could change and/or keep anything about this app's design, what would it be? Why?

Five participants liked the ease and simplicity of the app, noting that the flows for each task were streamlined and easy to follow. Three participants spoke on the advanced options, enjoying the ability to give more specific data if they wanted to. Participants also addressed limitations of the app, with one stating there is not enough help information on the app itself and another stating there is too much information presented on the observation form. Two participants suggested improvements to the user interface of the manage observations screen, providing ideas such as having a higher color contrast between the observation items in the list and the background of the manage observation screen (shown in the screenshot below), adding

the ability to change how the list of observations is sorted, and adding more differentiators to the items in the manage observations screen.



## Conclusions

As we can see from the testing results above, there are several areas for improvement in the Herp Atlas application. The recommended improvements are presented in order of severity.

### Save and Exit Flow

The ability to save an in-progress and incomplete observation is critical for the safety of Herp Atlas users. Only one of the participants completed this flow, with the remaining six participants attempting to submit the incomplete form and being directed to fill out the required fields and resubmit. The current way to complete this flow is through a button labeled “Exit”, which is at the top of the page. The placement of this button could be moved next to the submit button, as that is where the participants naturally navigated to when told to save an in-progress form, and the label changed to “Save and Exit” to further clarify what the functionality is.

### Clarify the Add Image Flow

No participants added an image to their observation. This was not explicitly mentioned in the task nor is it required to submit the observation, but multiple participants asked for this feature in the open-ended interview questions. This current functionality comes at the request of the Herp Atlas team, as the user might not be in the best position to take a picture, but an image will be required later for verification.

This flow of not being initially required but required later on can be better expressed in the app. Some options include a verification popup when a user tries to submit an observation without a picture, an icon on the manage observations screen indicating if the observation requires an image, and/or language on the observation screen explaining a picture will be required in the future.

### App Help Guides

A few participants navigated to the help page to try and get help with using the app itself. One participant was unable to complete the task and went to the help page for guidance and another was able to complete the task and looked to the help page for what fields were required and which ones were optional. Adding guides to the help page for assistance in using the app itself in addition to the overall Herp Atlas guidance could be helpful to new users.

### Clarifying Optional Fields

Some participants noted they felt overwhelmed by the optional fields and that there were too many to parse. None of the participants were experienced scientists who would make use of this information nor know what some of the fields meant. Adding some clarifying language to both the observation form and the help guides could alleviate the cognitive burden. Additionally, one path of exploration is to group the optional fields into categories and allow the

users to toggle which of the optional categories are viewable, giving more fine-grained control to the user to tailor the app to their knowledge and experience level.

## Refining the Manage Observations Page

Several participants commented on the user interface for the manage observations page. One suggestion from participants was to increase the color contrast of the list items and the screen background to make the items more visible. The other suggestion was to add more details to the list item (the prototype only has the species and date) to better differentiate the observations that occurred on the same day. One participant suggested time as one such differentiating detail. Finally, one participant suggested the ability to change the sort order between ascending and descending.