Early Bird

Citizen Science App Design for the Onychophora phylum

[Public Figma File Link]
[Public Figma Prototype Link]

Angel Le

Creature Information

Early Bird is designed for the Onychophora phylum, which contains all velvet worms between two families - Peripatopsidae and Peripatidae. Within the Peripatopsidae family is the Blind Velvet Worm (Leucopatus anophthalmus), which is spearheading this app.

As a lesser-understood phylum, Onychophora is broadly threatened, and the Blind Velvet Worm is considered endangered by the Internation Union for Conservation of Nature (IUCN) Red List.

Discovered in the last two centuries, very little is understood. Today, they face major threats - fire and deforestation removes damp logs/mossy stones/leaf litter needed for survival. Nearly exclusive to tropic forests, streamsides, coastlines, and shrublands in Australasia and Afro-America, Early Bird is equipped for audiences in both areas to discover and learn about the unique creatures.

"living fossil"

Velvet worms are otherworldly and nearly as old as life itself; dating back to the Cambrian period about 500 million years ago, which saw the first major diversification of animal groups. A missing link between arthropods (contains insects, spiders) and annelids (segmented worms like earthworms), they serve as a powerful study for the evolutionary history of our planet. For example, their simple eyes help us understand the evolution of vision.

We must understand velvet worms before beginning to protect.

Fun fact: surprisingly, velvet worms are more related to arthropods than annelids!

alien build, alien behavior

These worms are have adorable, cartoonish looks - with typically 15 pairs of non-jointed feet, limited/no eyes, antennaes, and a velvet texture, they're too distinct to mistake.

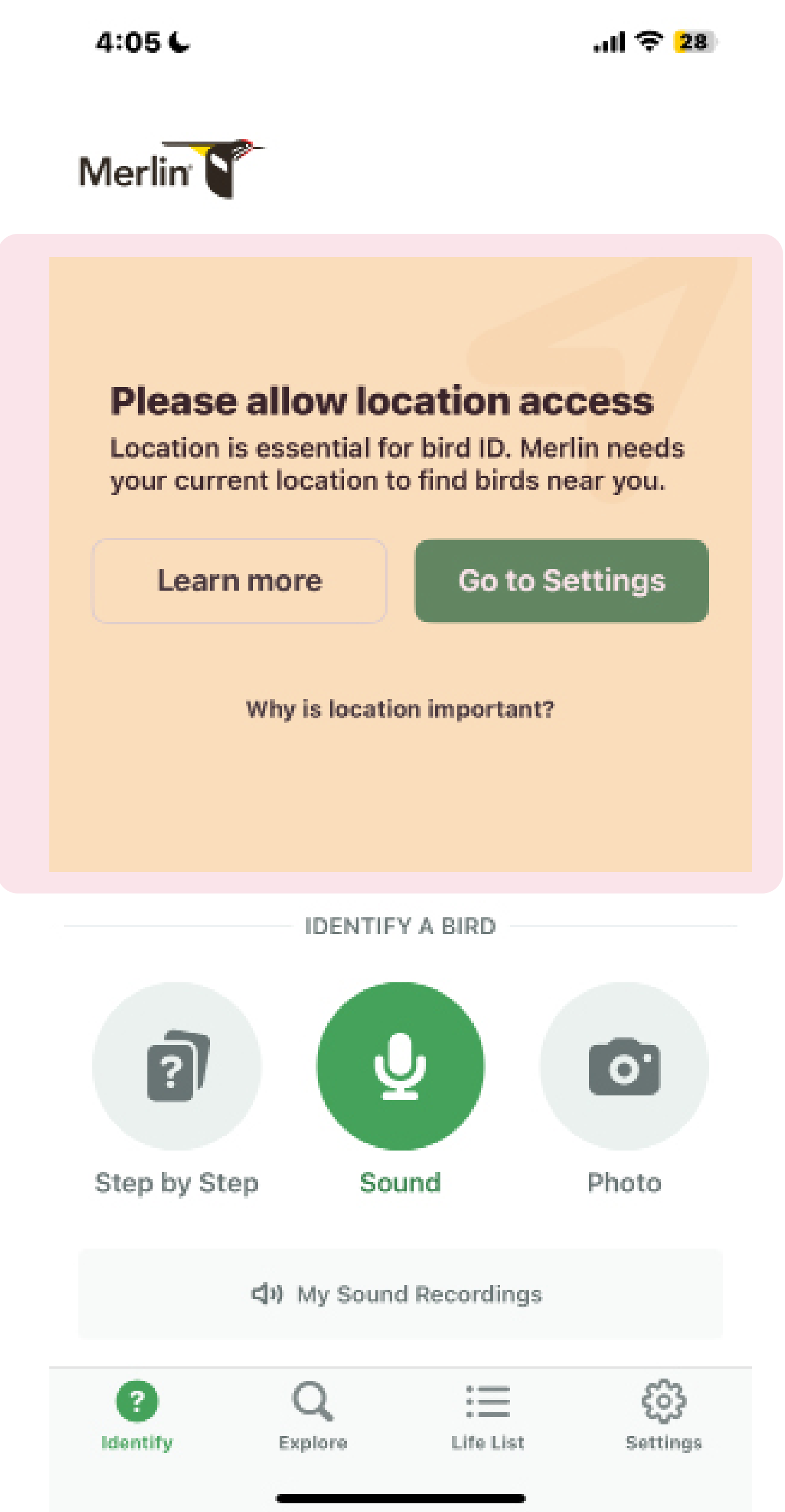
Their extremely porous, hydrophobic "velvet" skin is coated with papillae to protect them from lethal moisture-loss, and have small hairs receptive to touch and smell! They also breathe through constantly open trachea holes across their body. With a body prone to drying out, velvet worms are limited to damp, shady areas.

Generally blue-gray, brown, or white, velvet worms are often beautifully patterned. Their alien bodies are complete with teethy jaws and oral tubes that dispense a "silly string of death" - a viscous, sticky secretion that buys time against predators and tangles prey (and the nutritious dried slime is edible after!)

The velvet worms are also extremely diverse in forms of reproduction. While some species lay yolky eggs, others contain them until they're ready to hatch, and some even have yolk-less young that feed on their mother like mammals do!

Image Credits: Alexander Bär (https://www.horizons-mag.ch/2023/03/02/deciphering-a-natural-super-glue/)

Ideation & Process

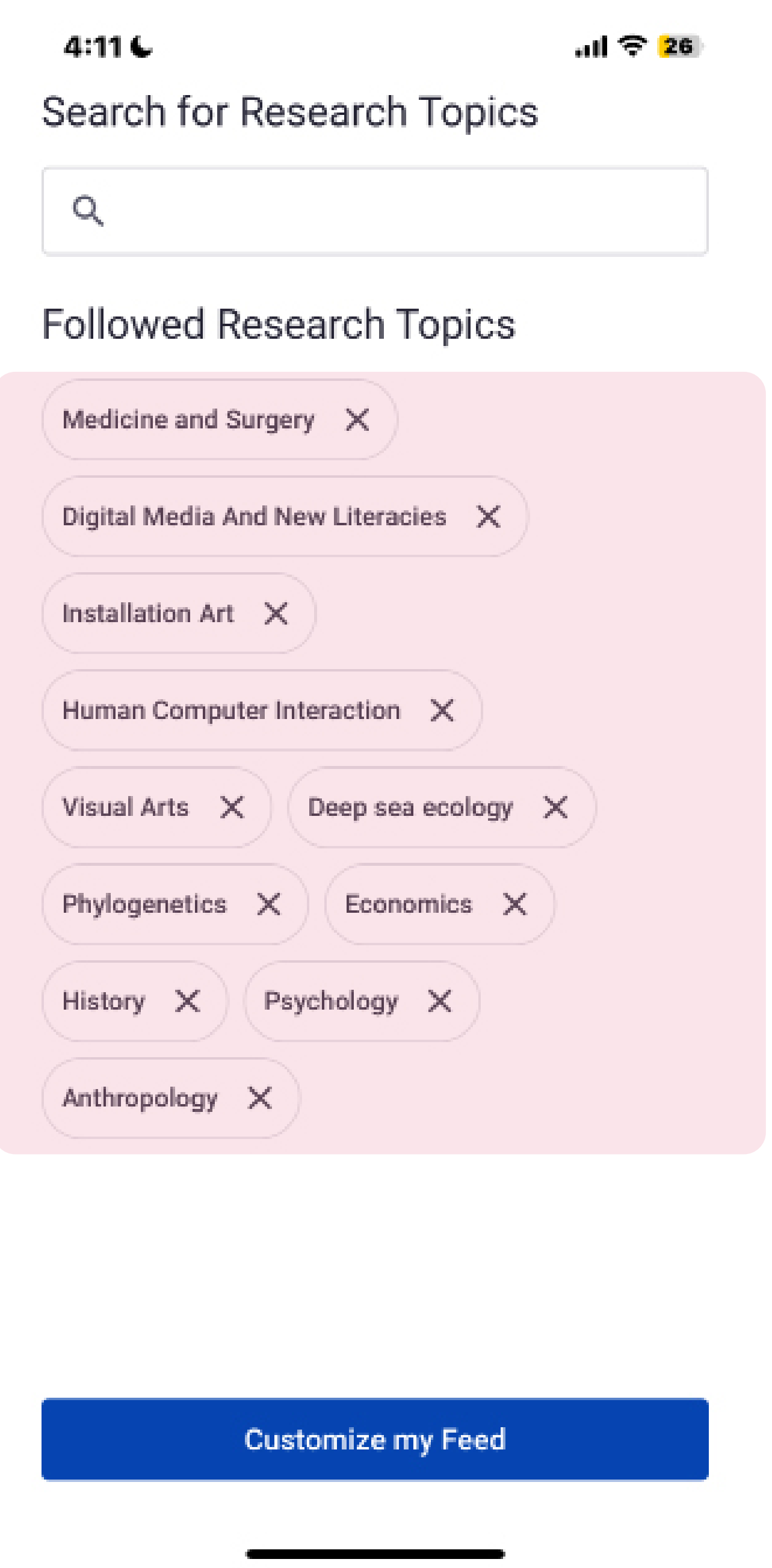

4:05
28
Merlin
Learn more
Go to Settings
IDENTIFY A BIRD
Step by Step
Sound
Photo
My Sound Recordings
Identify
Explore
Life List
Settings

Please allow location access

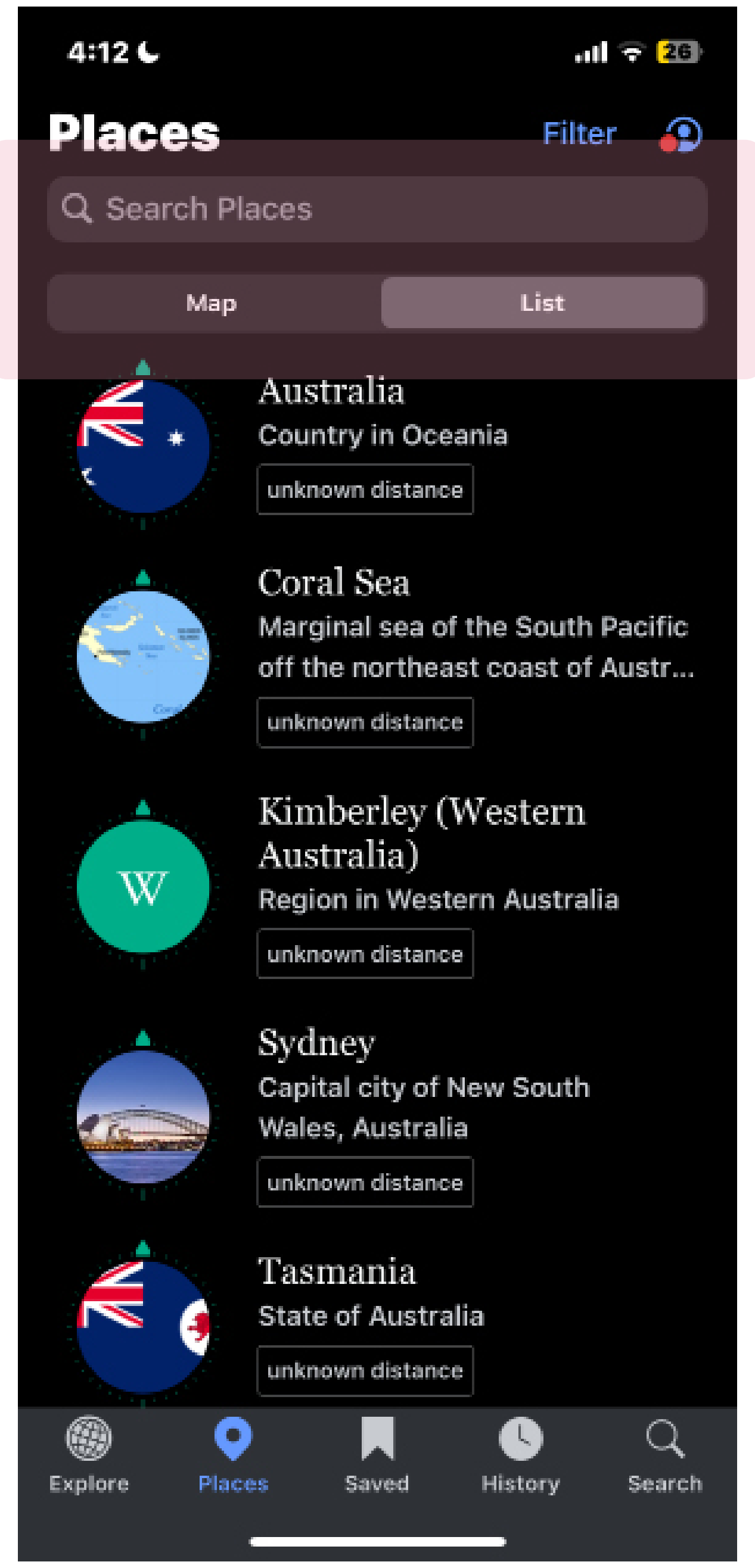
Location is essential for bird ID. Merlin needs your current location to find birds near you.

Why is location important?

Through exploring the Merlin Bird ID app, I realized location and camera access in the onboarding process would be important, and I've implemented this in Early Bird.


4:11
26
Search for Research Topics
Followed Research Topics
Medicine and Surgery ✕
Digital Media And New Literacies ✕
Installation Art ✕
Human Computer Interaction ✕
Visual Arts ✕
Deep sea ecology ✕
Phylogenetics ✕
Economics ✕
History ✕
Psychology ✕
Anthropology ✕
Customize my Feed

In the Academia app, I was requested to select topics of interest in onboarding, and this inspired my media tagging screen, where users can search and select relevant tags.


4:12
26
Places
Filter
Search Places
Map
List
Explore
Places
Saved
History
Search

Australia
Country in Oceania
unknown distance

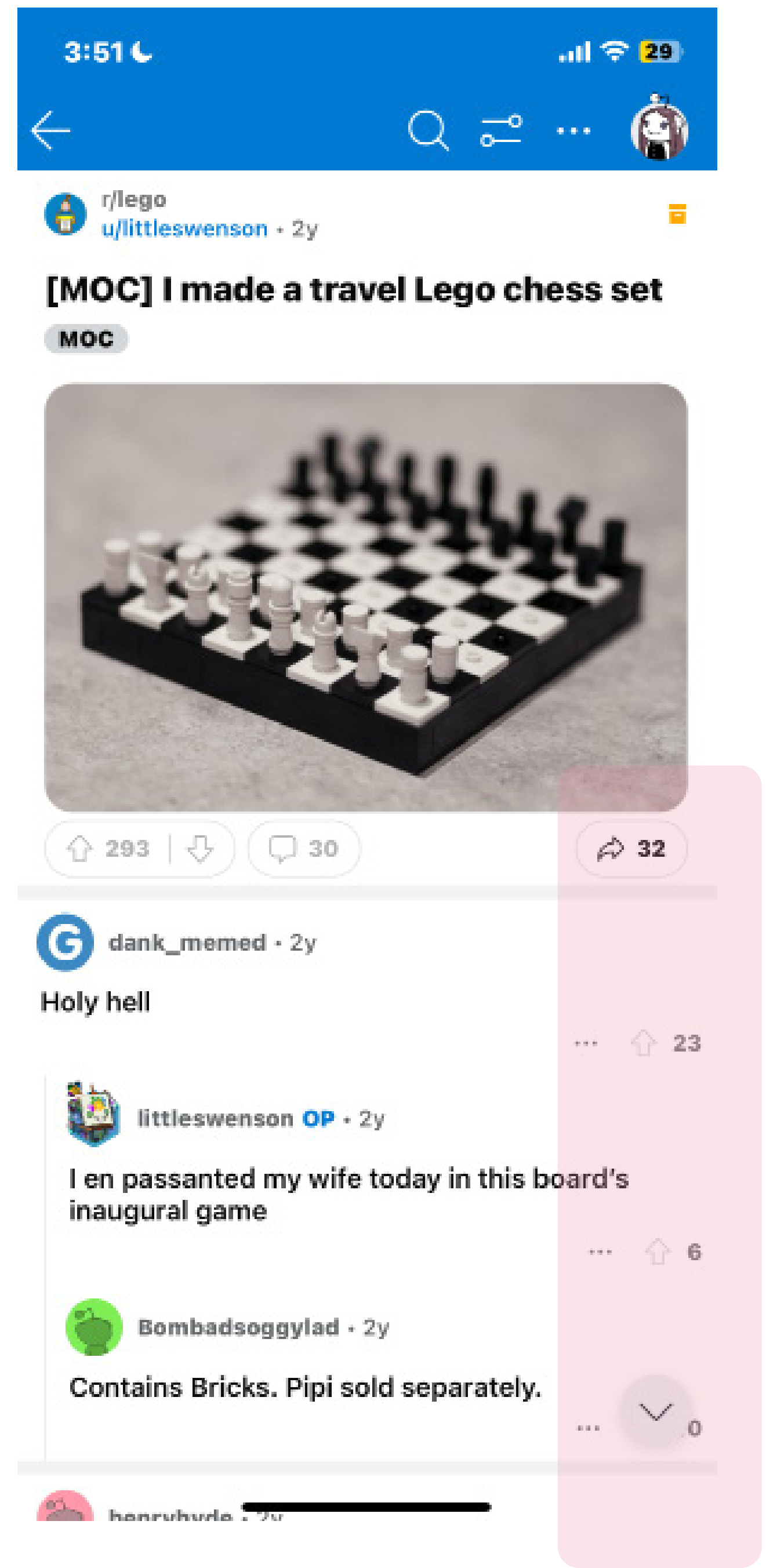
Coral Sea
Marginal sea of the South Pacific off the northeast coast of Austr...
unknown distance

Kimberley (Western Australia)
Region in Western Australia
unknown distance

Sydney
Capital city of New South Wales, Australia
unknown distance

Tasmania
State of Australia
unknown distance

I also love the 'Places' tab in the Wikipedia app, and how their spatial portal was split by map and list view, which I also incorporated into Early Bird, in the form of a map and sightings data view.


3:51
29
MOC
293
30
32
23
6
0

r/lego
u/littleswenson • 2y

[MOC] I made a travel Lego chess set

dank_memed • 2y

Holy hell

littleswenson OP • 2y

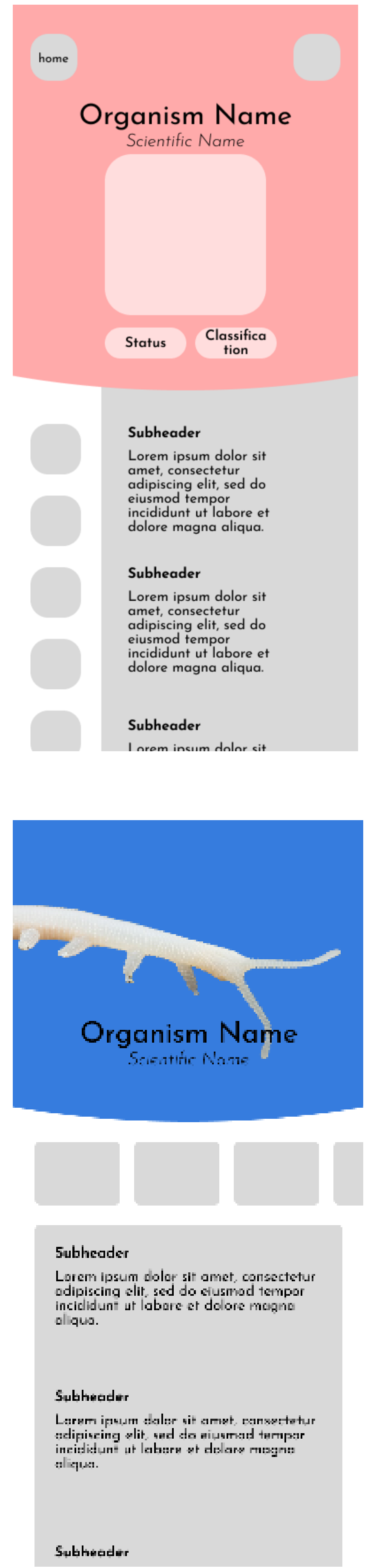
I en passanted my wife today in this board's inaugural game

Bombadsoggylad • 2y

Contains Bricks. Pipi sold separately.

Reddit's forum design is a major inspiration for Early Bird's forum, with the addition of 'Citizen' and 'Scientist' roles that resemble Discord's chats.

Ideation & Process



home
Organism Name
Scientific Name
Status
Classification
Subheader
Organism Name
Scientific Name
Subheader
Subheader
Subheader

Initial versions of the library page for a blind velvet worm

My main process documents were **sketches, user flow drafts, and discussion notes.**

Through these sketches, I brainstormed different layouts for screen types, including the greeting, media upload, and "library pages" for species within the app's design (the Onychophora, or velvet worm, phylum). The focus was to explore different ways to interact with the main features without emphasizing how they connect to each other. After beginning my sketches, I realized that the layouts were built for right-handed users like me, and did not consider left-handed users (-like myself as a child!), and shifted my focus for the remainder of the sketches. I considered the type of user, horizontal symmetry for left/right-handed use, as well as keeping the main "acting" area in the lower 2/3rds of the screen, where hands have best reach. I designed with the user in mind, intending to interact with academics by two main bridges - species in media confirmed by scientists, and a forum/chat section between citizens and scientists.

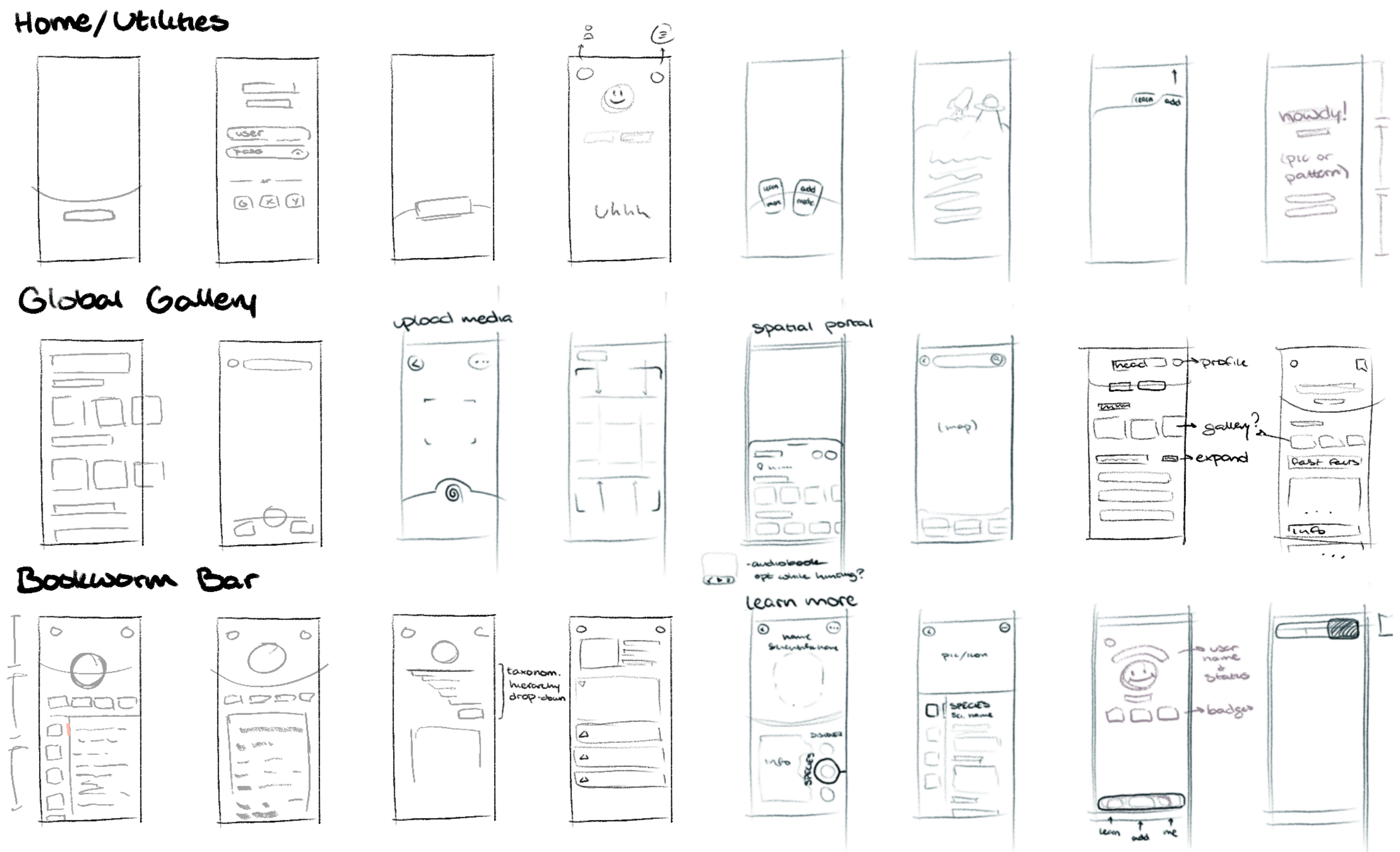
I came up with four ways to upload media and settled upon two for range. An initial plan was inspired by an Instagram/AppleOS/Snapchat camera mechanism that users can click to take photos or hold down to record videos. I wanted the process to feel clean and minimal, instead of cluttered.

I designed the metadata and forum screens to resemble Tumblr or Reddit, where users upload one or multiple pieces of media, then tag and note their sightings. I loved the range in skill level you'd receive posting on Reddit, and this shows in the profile badges in Early Bird, which would add credibility to scientists' responses in my hypothetical algorithm. I also love the social aspect of following a scientist to keep up with their work/app activity. Originally, I designed the "citizen media" to only allow metadata assigned by scientist profiles, but after the first round of testing, reversed this to allow citizens to feel more involved in advancing science.

My biggest goal for the app was to feel easy to use and build a closer bond between the public and scientists working towards the same goal - learning!

While I initially wanted to gamify my design with an alien or fantasy theme, I quickly found that integrating a complex theme/look was overcomplicating the quality of interactions, especially for my first app. I scrapped this for a cuter, bubbly look that focused on teaching users new information and make them feel involved in the discovery and study of an endangered phylum. Early Bird is focused on the beauty of learning as a user above all, so exploration, not perfect metadata, is my emphasis. Data entry should be fun and not tedious. I opted for rounder shape language in the buttons and a simple look inspired by iOS elements.

Wireframes

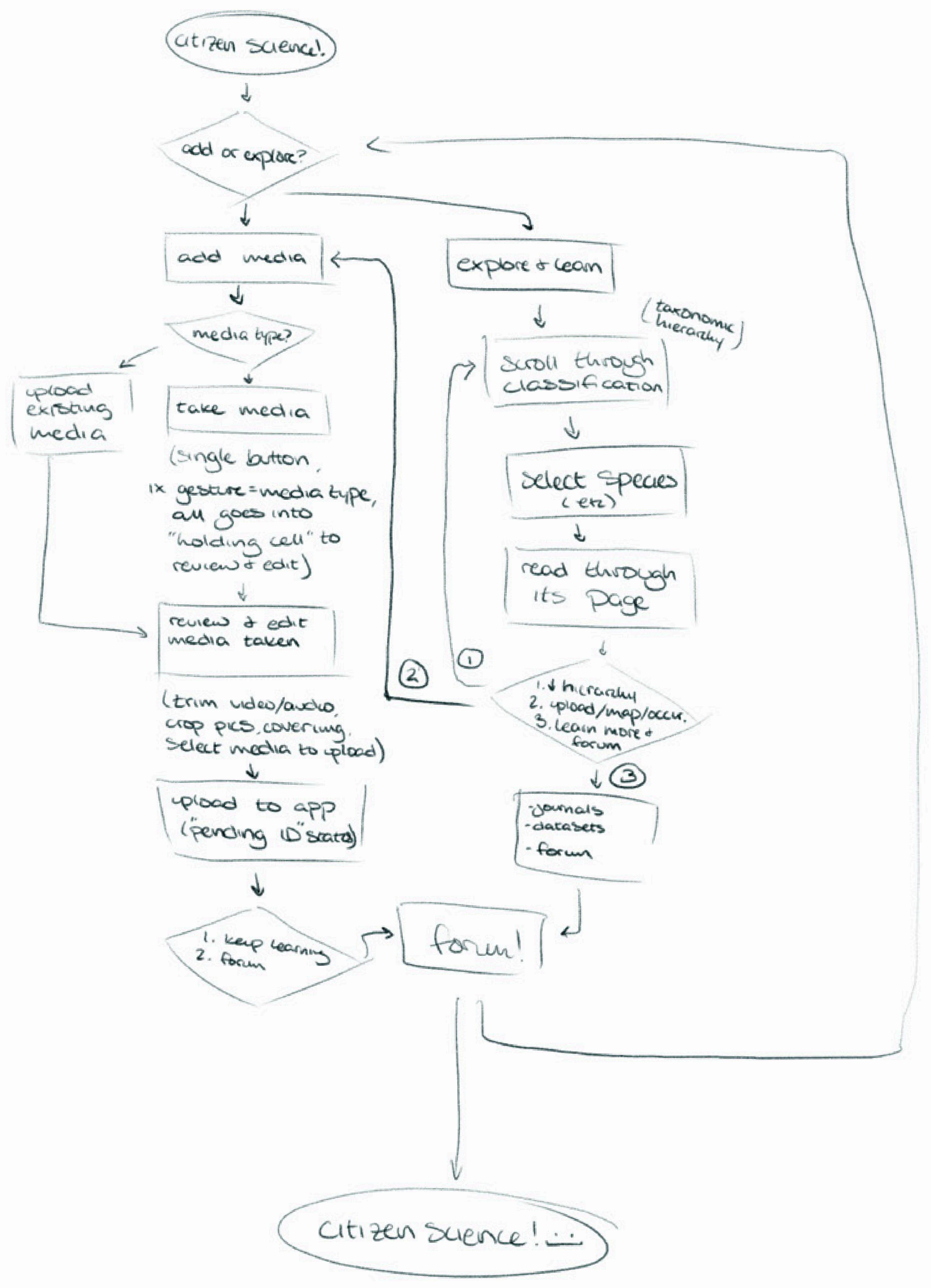


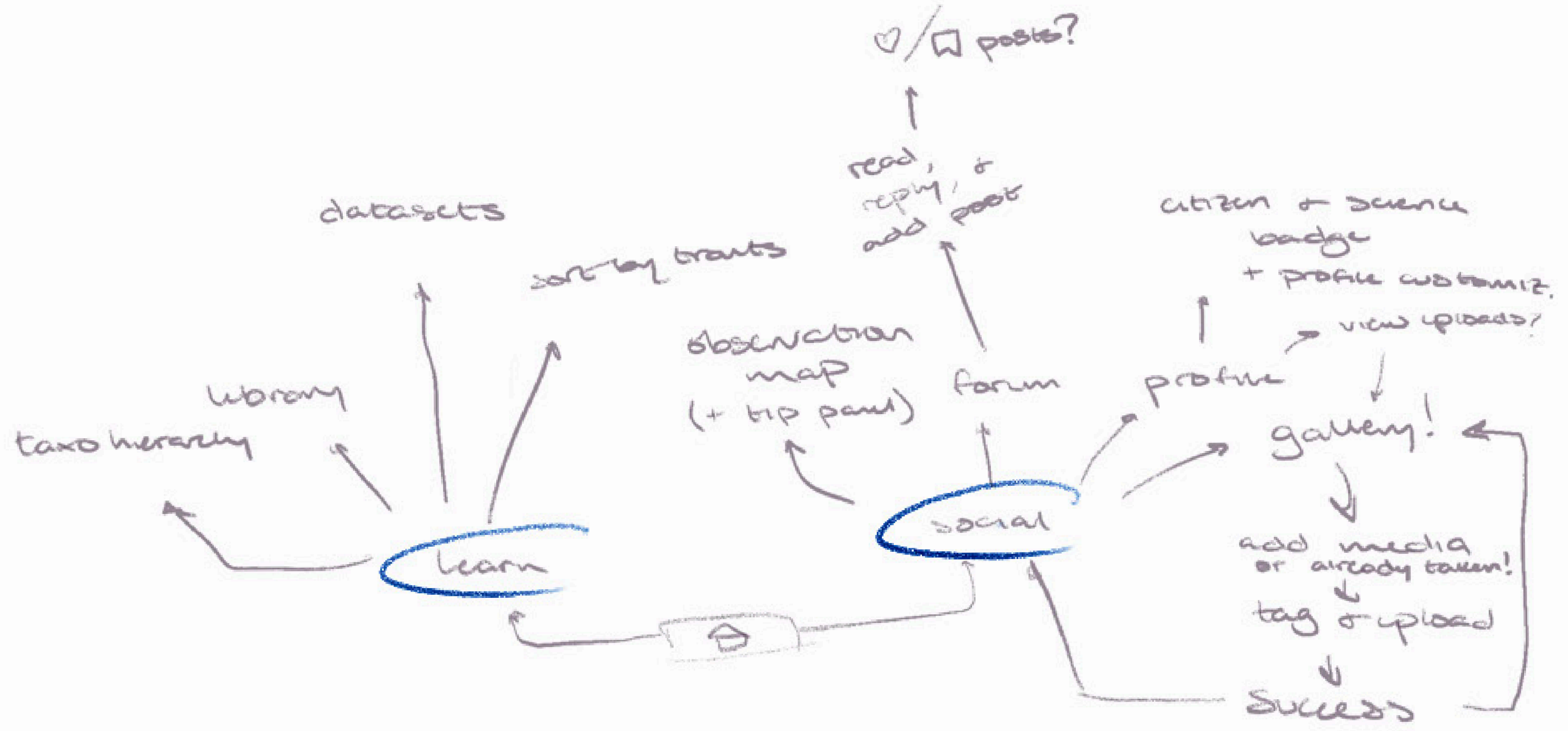
Home/Utilities
user
Uhhh
howdy!
(pic or pattern)
Global Gallery
upload media
spatial portal
(map)
head
profile
gallery?
expand
learn more
Bookworm Bar
taxonom. hierarchy drop-down
name
info
pic/icon
species
user name & status
badges
learn
add
me

Wireflows

My wireframe sketches were originally to try different layouts after writing a list of main and secondary priorities. Personally, I found this to be overwhelming and resulting in cluttered and unclear designs.

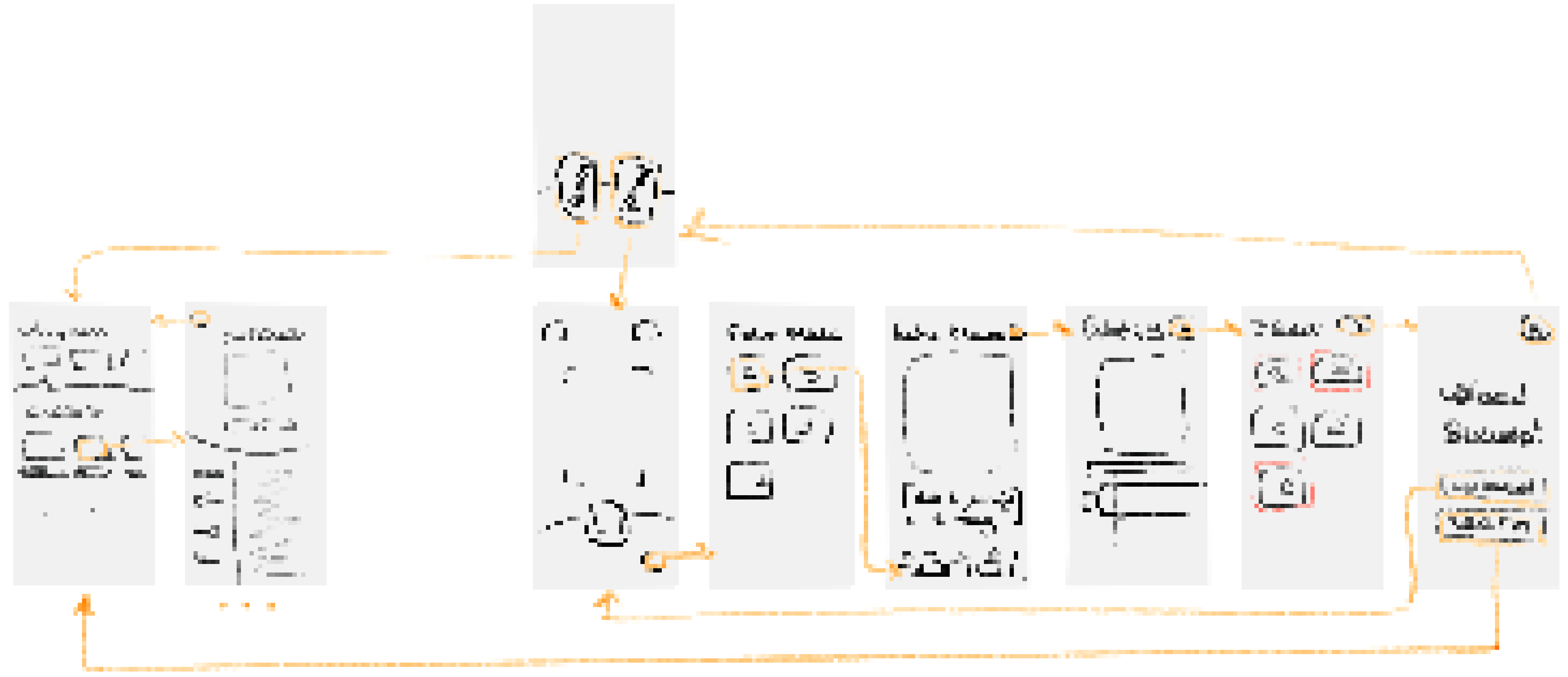
Attempting a different technique, I made a handful of mind maps and it definitely provided a clearer vision for Early Bird. I found that the mind map was more effective in transitioning from a list of flows and features to the visual prototyping, because I was able to view the functions, group them, and find gaps and redundancies.


citizen science!
add or explore?
add media
explore + learn
media type?
upload existing media
take media
(single button, 1x gesture = media type, all goes into "holding cell" to review + edit)
review + edit media taken
(trim video/audio, crop pics, covering, select media to upload)
upload to app ("pending ID" state)
1. keep learning
2. forum
forum!
(taxonomic hierarchy)
scroll through classification
select species (etc)
read through its page
1. ↓ hierarchy
2. upload/map/occur.
3. learn more + forum
①
②
③
-journals
-datasets
-forum
citizen science! :)


♡/🔖 posts?
read, reply, + add post
datasets
sort by traits
library
taxo hierarchy
observation map (+ trip panel)
forum
citizen + science badge
+ profile customiz.
view uploads?
profile
gallery!
learn
social
add media or already taken!
tag + upload
success

I created the wireflows with as clear of a user journey as I could have. Early Bird's features naturally divided into an educational ("learn") and sharing ("explore") section. The 'learn' tab consisted of the species articles and sightings map, and the 'explore' tab hosts the forum and ability to upload and tag media. After several rounds of usability testing however, the sightings map and forum would switch to the opposing parent tabs, as this layout was more intuitive for my users.

Usability Testing

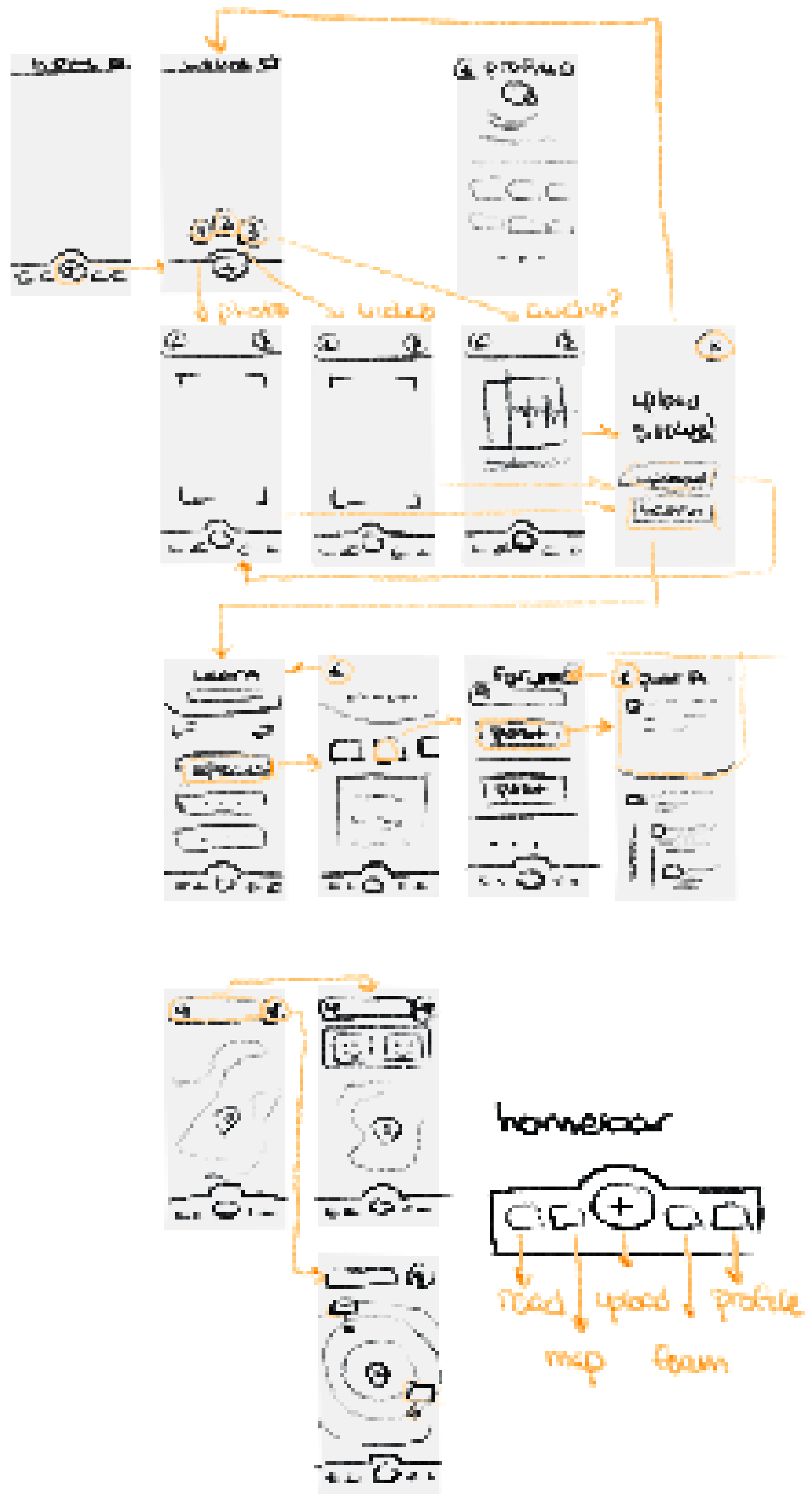


Round 1 - lainy

- homebar tabs = confusing navig.
- ability to discern screens + button purpose (limited by prototype (too lo-fi, poorly designed)
- colors are overly bright + distract.

- further develop prototype w/ out ref
  - scrap design + start fresh
- minimal, high contrast palette!

Usability Testing



Round 2 -Lainy

- ⌂ is unclear, feels like profile page ("profile gets smaller") → ■ redesign so less like profile pg! (moved)
- homebar icons misleading ("learn, home, share") - intention ("bookmarked, home, chat") - reception
  - suggest 📖, open book

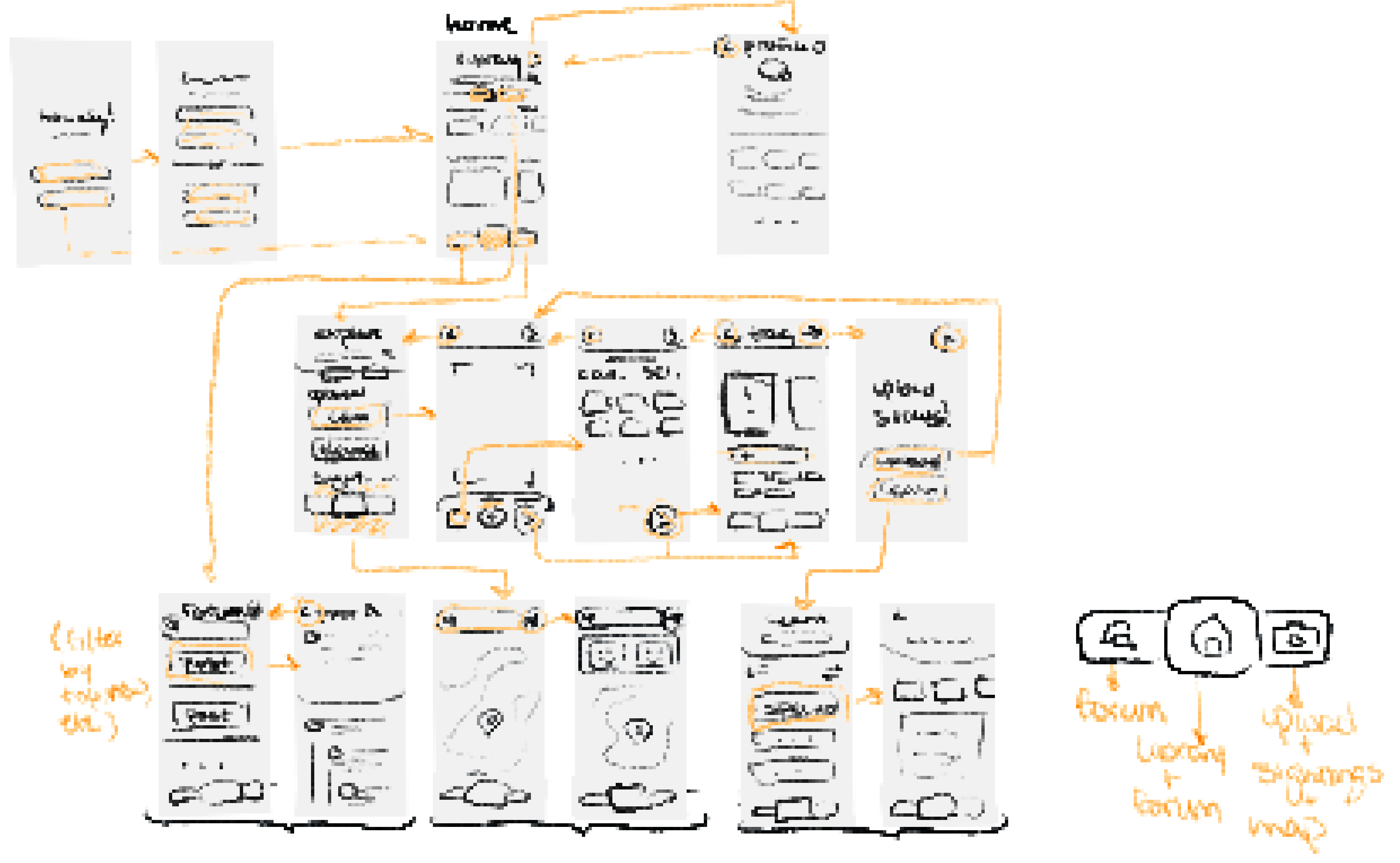
  → ■ redesign icons
  ■ tweak homebar
  ■ compon. & proto.
- assumed species names → ■ add species names! blind ◦ vent.
- prefers forum (if ~reddit) exclusively through learn tab * (currently access. in both)
  - unless forum ~~~instagram~~, then do ~~social~~ tab exclus.

  → ■ keep BB → library, forum, map
  ■ upload tab / explore/etc
- ability to upload media feels like afterthought by design (access is nested, color hierarchy is off & user eyes gravitate to high contrast
  - since round 1, remembered that media upload was a __main__ feature, now feels minor

  → Pathflow priority!
  ■ upload = major, social = minor
- would enjoy forum × upload link (2ndary) → ■ 2ndary access to features, but __clear__ primary vs. 2ndary
- __enjoys__ bridges btw learn × social, but arragn. of both tabs is unclear & misaligned → ■ keep Ⓛ __learn__ + social → Ⓢ __share__ tab (MAIN FLOW)
  ■ add bridges btw both → (side flows)
  ■ gallery in library pgs
  ☒ gallery in maps
  ☒ forum in library pgs
  ■ forum in upload → success screen
- upon landing (home), wants clear path to __learn__ or __social__ → ■ homebar = learn, home, upload → forum, home, upload (library ↖ forum (2ndary) ↑ map ↗)
- local occurrences/global gallery feels like learning, not gallery
  - suggests renaming "local occurrences"

  → ■ add gallery in library page
  ■ on GG, arrange it like phone media gallery & not like species on BB
- bar feels like collected worms w/out text (intended __confirmed__ observations/occurrences) → ■ keep bar in BB & expand in library page

Usability Testing



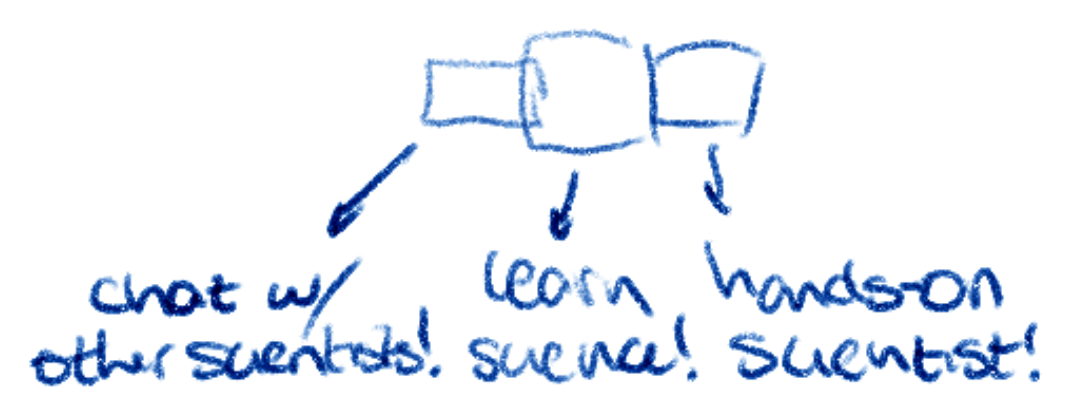
Round 2 -Isa

- forum post
- real app! feels real so far → colors, text, + visual hierarchy is clear!
- view my 'sightings', not occurrences → ■ change to "sighting"

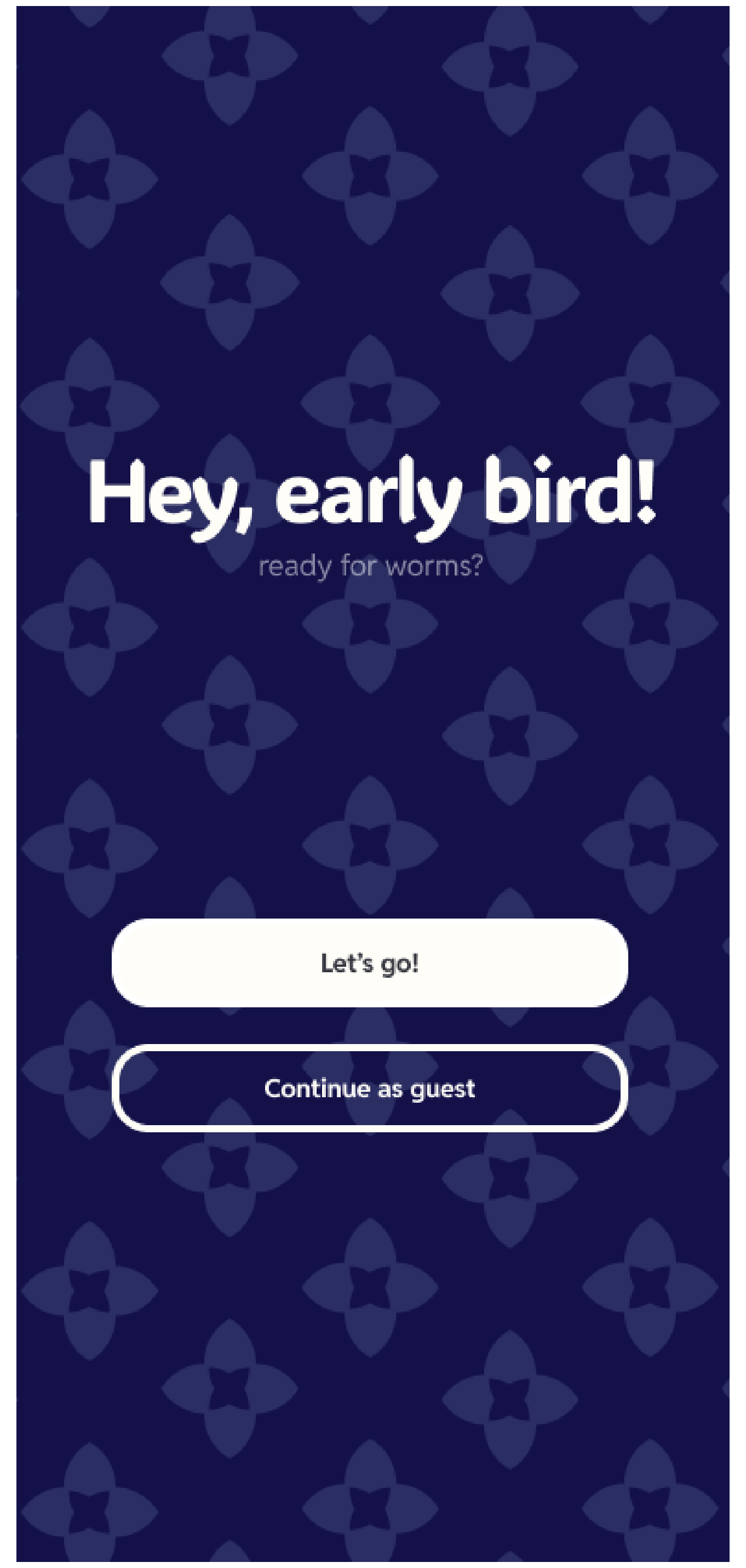
forum post
- struggling w/ forum
  - how to get to forum, tab @ bottom needs text?
  - home is okay
  - book can mean several things
  - can filter forum
- published datasets
- "__filter__ by" traits
- diff. radius - map location good!
- scientists answer posts! @ citizen/scientist / ✓ / badge
  - a scientists answered in this!
- ♡ button for most liked posts
- report & hide, purple link, filter by unread/non favorite;
  - likes for comments, saves for posts

→ Forum & citizen × scientist roles
■ redesign icons
■ traits → "filter by traits"
☐ stretch → __citizen__ + __scientist__ badge
☐ profile
☐ scientist responses = more credible!

- homepage = ~~book tab~~;
- keep camera tab as is!
- comments under media tags!!!
- upload → ⊗ button!



Final Shots


Let's go!
Continue as guest

Hey, early bird!

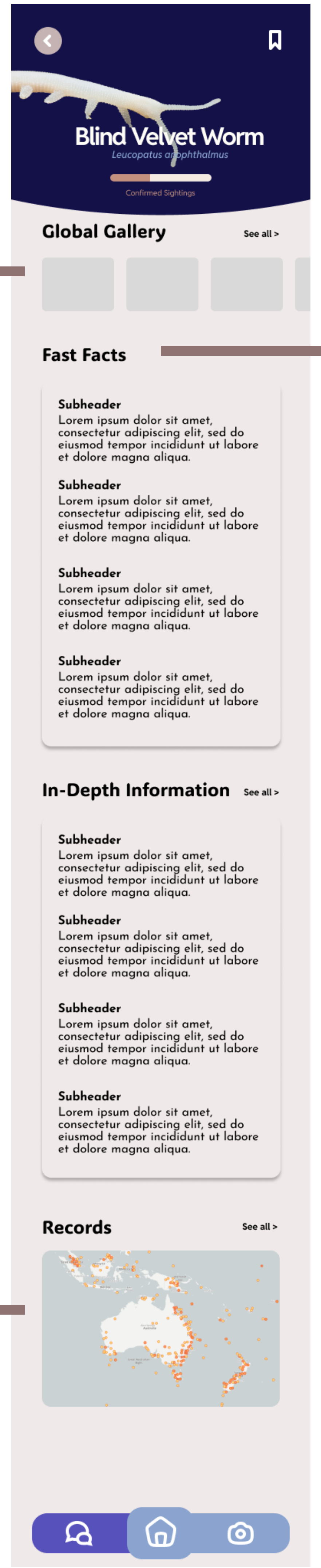
ready for worms?

The final greeting screen serves as the base for Early Bird's major choice screens, and keeps the buttons in the lower 2/3rd portion for a comfortable experience without reach. The colors and patterning created in Figma also introduce the app as friendly and clean.

To bridge the educational and explorational sections of Early Bird, each library page is designed to sandwich information with a 'global gallery' for local sightings other users have posted, and a 'records' window that shows sightings on a map. These areas allow secondary paths/bridges with the explorative sections from the educational pages (high priority).

A user, in her test, best described this as switching from "reading the science to being in the conversation with scientists".

This background (#131148) with white text (#FFFFFF) has a 17.48:1 contrast.


Blind Velvet Worm
Leucopatus aphthalmus
Confirmed Sightings
Global Gallery
See all >
Fast Facts
In-Depth Information
See all >
Records
See all >

Subheader
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Subheader
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Subheader
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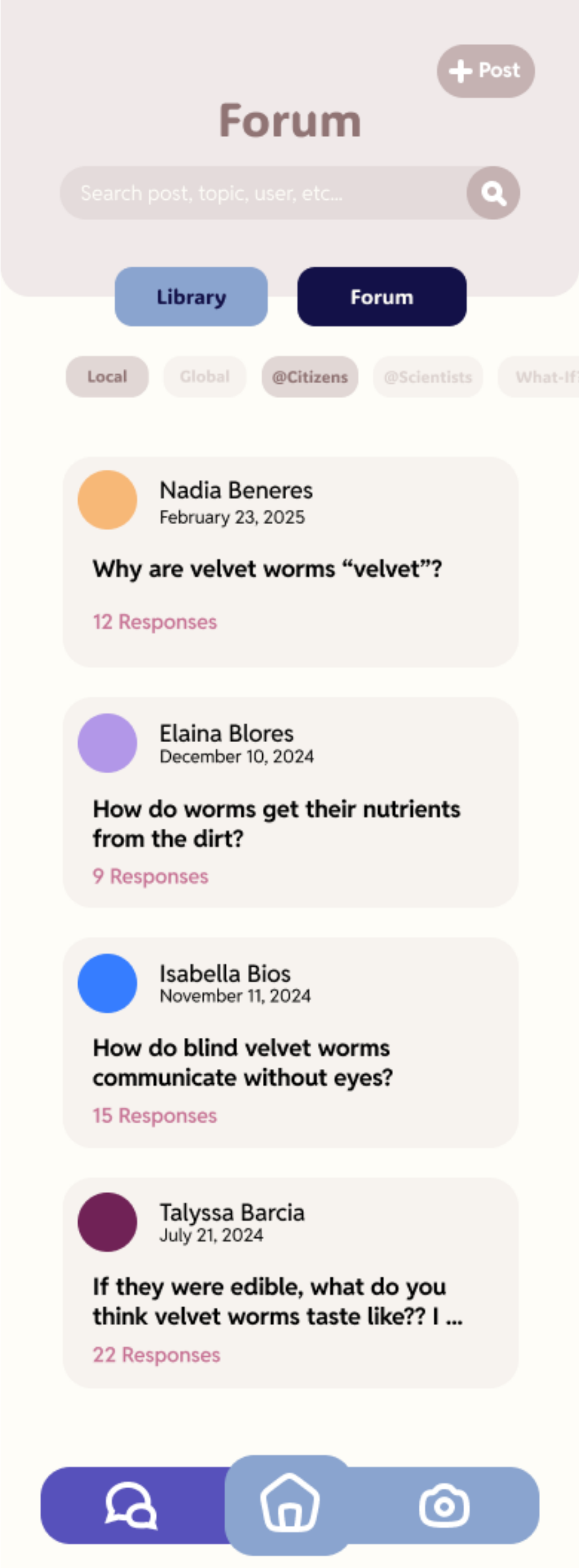
Subheader
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Page keeps the shape language with an ambidextrous layout. It is now horizontally mirrored for both left and right-handed users.

Section tabs are changed from neutrals to high-contrast blue shades to solve usability concern and reinforce clear visual hierarchy.

Filter buttons are neutrals as secondary functions.


Post
Forum
Search post, topic, user, etc...
Library
Forum
Local
Global
@Citizens
@Scientists
What-If?

Nadia Beneres
February 23, 2025
Why are velvet worms "velvet"?
12 Responses

Elaina Blores
December 10, 2024
How do worms get their nutrients from the dirt?
9 Responses

Isabella Bios
November 11, 2024
How do blind velvet worms communicate without eyes?
15 Responses

Talyssa Barcia
July 21, 2024
If they were edible, what do you think velvet worms taste like?? I ...
22 Responses

The forum page displays questions or fun facts. This is the chat area for citizens, enthusiasts, and experts to bond over the Onychophora phylum. Different filters can be applied to narrow posts down based on topic, proximity, role of poster, and other factors.

Final Shots

This brown background (#502E1D) with light neutral text (#FEFDF8) has a 17.48:1 contrast.

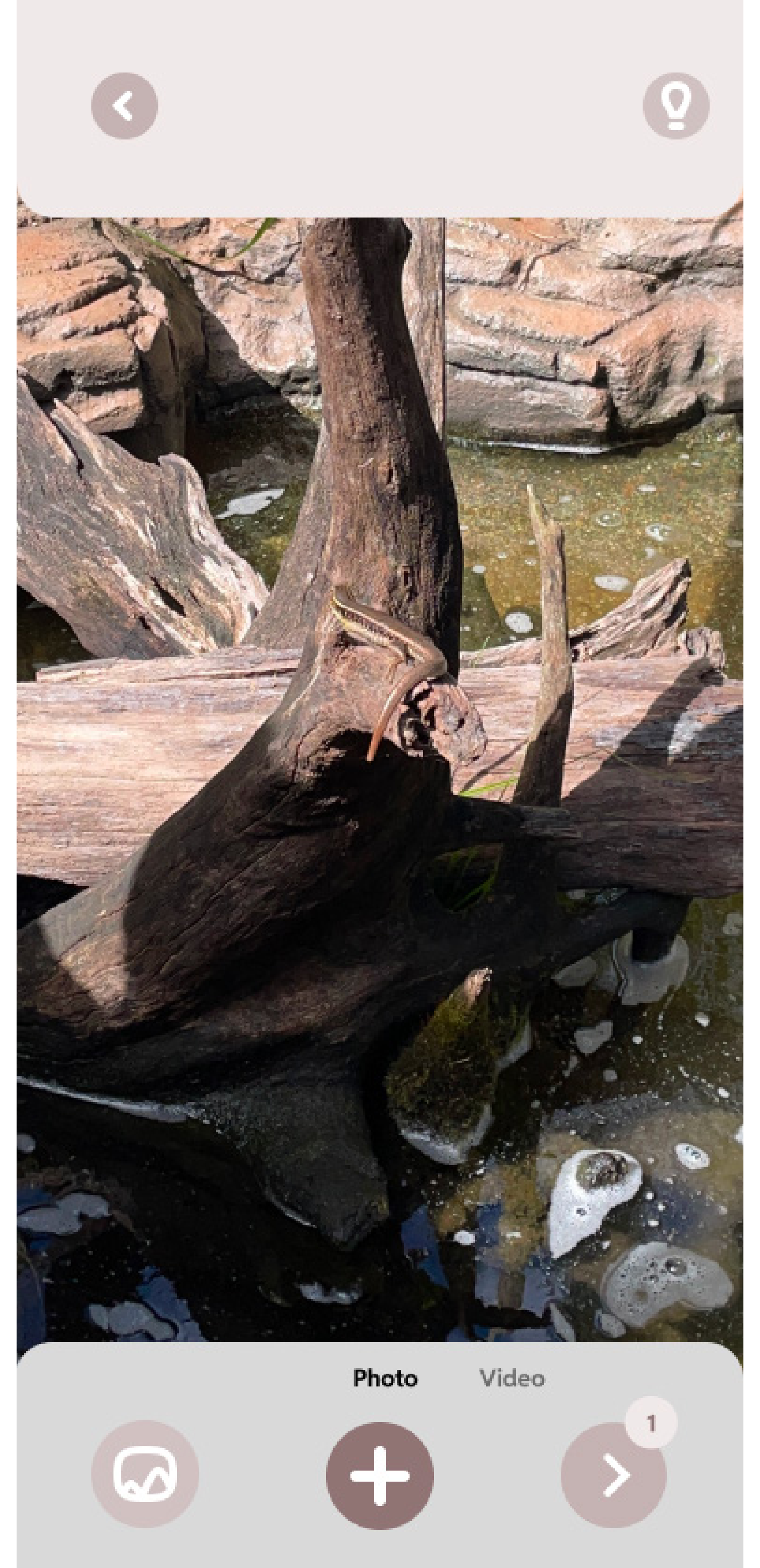
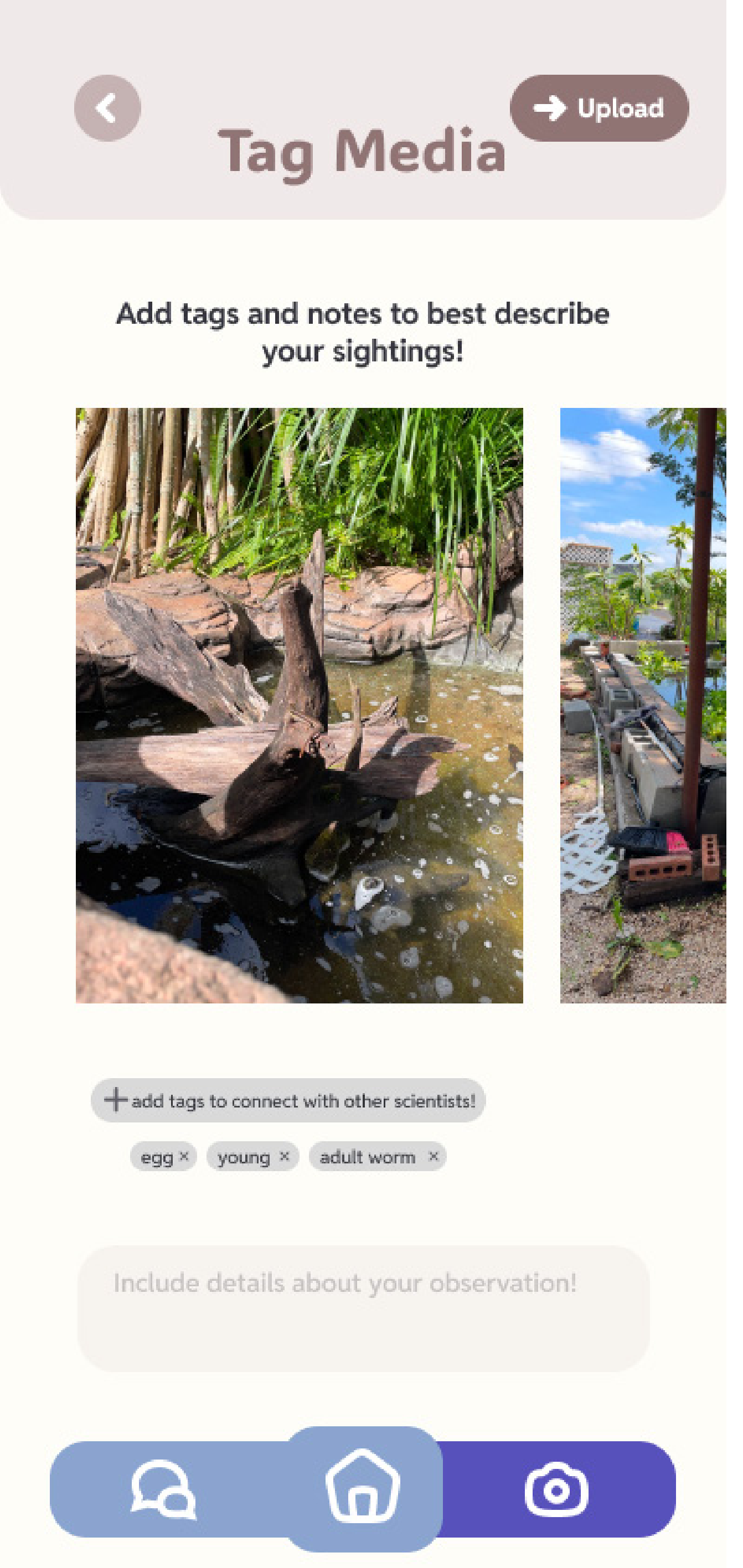


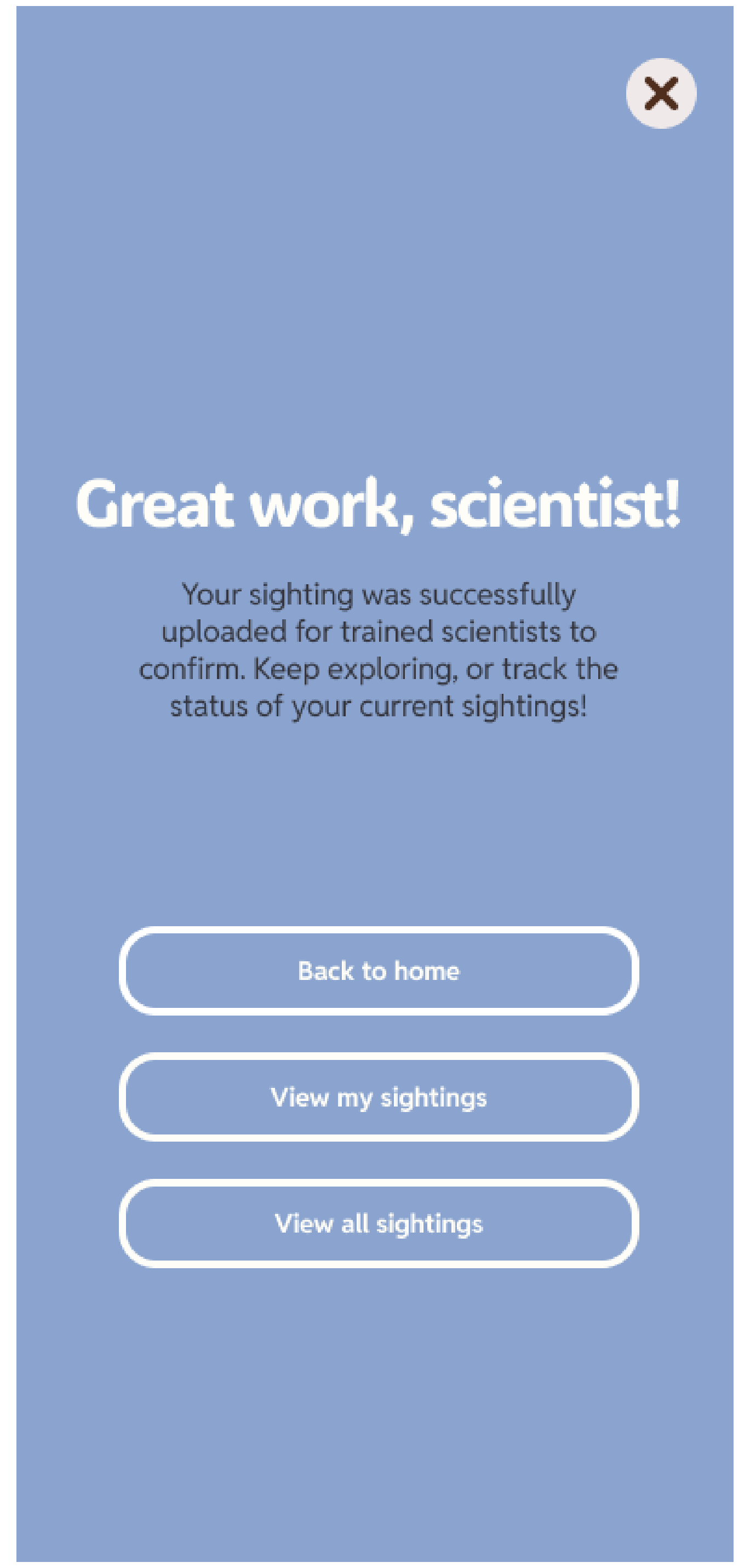
Photo
Video
1


Tag Media
Upload
add tags to connect with other scientists!
egg ×
young ×
adult worm ×

Add tags and notes to best describe your sightings!

Include details about your observation!

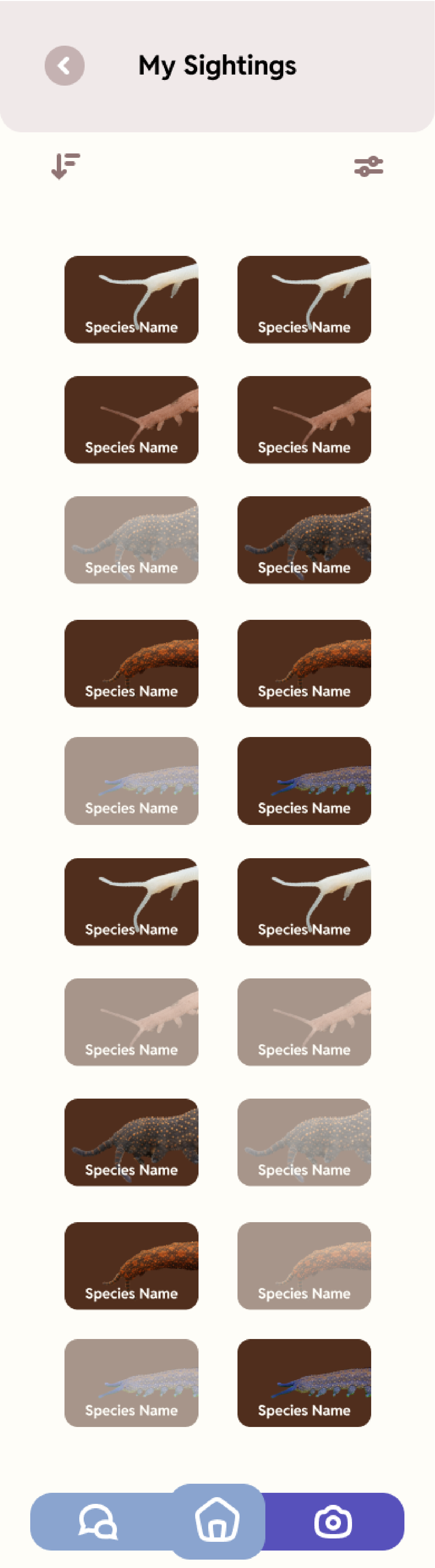
The final greeting screen serves as the base for Early Bird's major choice screens, and keeps the buttons in the lower 2/3rd portion for a comfortable experience without reach. The colors and patterning created in Figma also introduce the app as friendly and clean.


Back to home
View my sightings
View all sightings

Great work, scientist!

Your sighting was successfully uploaded for trained scientists to confirm. Keep exploring, or track the status of your current sightings!

This page shows the user's sightings. Pictures would be replaced with a thumbnail of each sighting uploaded. Lower opacity elements are pending confirmation by a user registered with the @scientist role.


My Sightings
Species Name