

Team 24

Merlin Bird Identification



Learning Gap

12.2% of students are less familiar with declining species today than in 2005

(Source: The State of the World's Birds, 2022)

56% UK secondary schools offer no outdoor lessons

(Source: WWF, Schools for Nature Report, 2024)

15% decrease in student knowledge of local vertebrate species over a decade.

(Source: WWF, Schools for Nature Report, 2024)





Merlin Bird ID

Free mobile app using AI to **identify birds** via photo, sound, or questionnaire. Powered by datasets from Macaulay Library and eBird, with 1 billion+ observations (Cornell Lab, 2024).



Google Play Store

5M+

Downloads

4.7/5

141K Reviews

Apple App Store

4.9/5

106.5K Reviews



Cornell Lab
Merlin

Merlin's Non-Profit Model: Driving Conservation Impact

Key Partners Core: - Cornell University & Cornell Lab of Ornithology - eBird Fundings: - National Science Foundation (grant number DRL-1010818) - Pennington® Wild Bird Food - SWAROVSKI OPTIK - the Faucett Catalyst Fund	Key Activities Core activities: - Identify birds(by photo and sound) Merlin Needs to update bird data constantly. Other activities: - Bird learning (See introduction of birds near users) - Personal bird species list - Off-line recognition service (requires download)	Value Propositions Value to Users: A free, easy-to-use bird ID and learning tool that helps people connect with nature Value to Science: User data fuels eBird's global database, supporting research, monitoring, and conservation	Customer Relationships Acquisition: Attracts beginners through a free and easy-to-use app. Provides instant success with quick identification, creating motivation to continue. Retention: Keeps users engaged by regularly updating species databases (powered by eBird). Offers bird guides and resource packages. Builds partnerships with schools and nature centers. Development / Value Growth: Gradually guides users toward the eBird community, shifting them from passive learners to active contributors. Cultivates user interest in birdwatching and conservation. Summary: Self-service,Automated services,Community,Co-creation	Customer Segments - Professional Ornithologist / Researcher - Learners (Students or new birders) - The Data Contributor / Citizen Scientist - The Global Life-Lister / Traveler - Casual Nature Explorer - Ecological conservation practitioner (Monitor bird population dynamics and habitat conditions)
Cost structure Fixed cost: - Software/website update and maintenance (APP in IOS,Android) Variable cost: - Social media promotion and management fees (media editors etc.)		Revenue Streams Nonprofit funding: - Sustained by donations, research grants, and foundation support rather than commercial revenue. Provide found: - National Science Foundation (grant number DRL-1010818), Pennington® Wild Bird Food, SWAROVSKI OPTIK, The Faucett Catalyst Fund		

Personas



Curious Beginner
Anna

Basic Information:

Name: Anna
Age: 22 Years Old
Occupation: Student
Location: Midwestern United States City
Technical Ability: Proficient in using smartphones and social apps

Short Description

Anna is an ordinary student. Recently, influenced by her friends, she has started to enjoy hiking and visiting parks on weekends, hoping to get rid of the pressure from school. She has a good impression of nature but knows very little about it. When outdoors, she began to notice the chirping of birds and birds around her, but she was frustrated by no one asking and had no idea how to start looking them up. **She hopes to have a simple and effortless way to satisfy her curiosity.**

Core requirements and goals

The main objective is to quickly and accurately identify what the bird in front of or beside your ear is.
Experience requirements: The process should be simple and interesting, not as complicated as an exam. Getting the answer immediately can bring a great sense of satisfaction.
Emotional need: I hope to feel intelligent, insightful and capable of understanding the natural world around me.

Motivation

1. The novelty and joy of exploring the natural world.
2. Share new discoveries on social media.
3. Add new goals and fun to your daily walks.
4. She needs nature education.

Frustration

1. Traditional bird guides are too **difficult** to understand and have too many terms.
2. She don't know where to start and lack basic knowledge.
3. Birds move so **rapidly** that there is no time to observe and record them.
4. Worried that professional tools require **payment**.

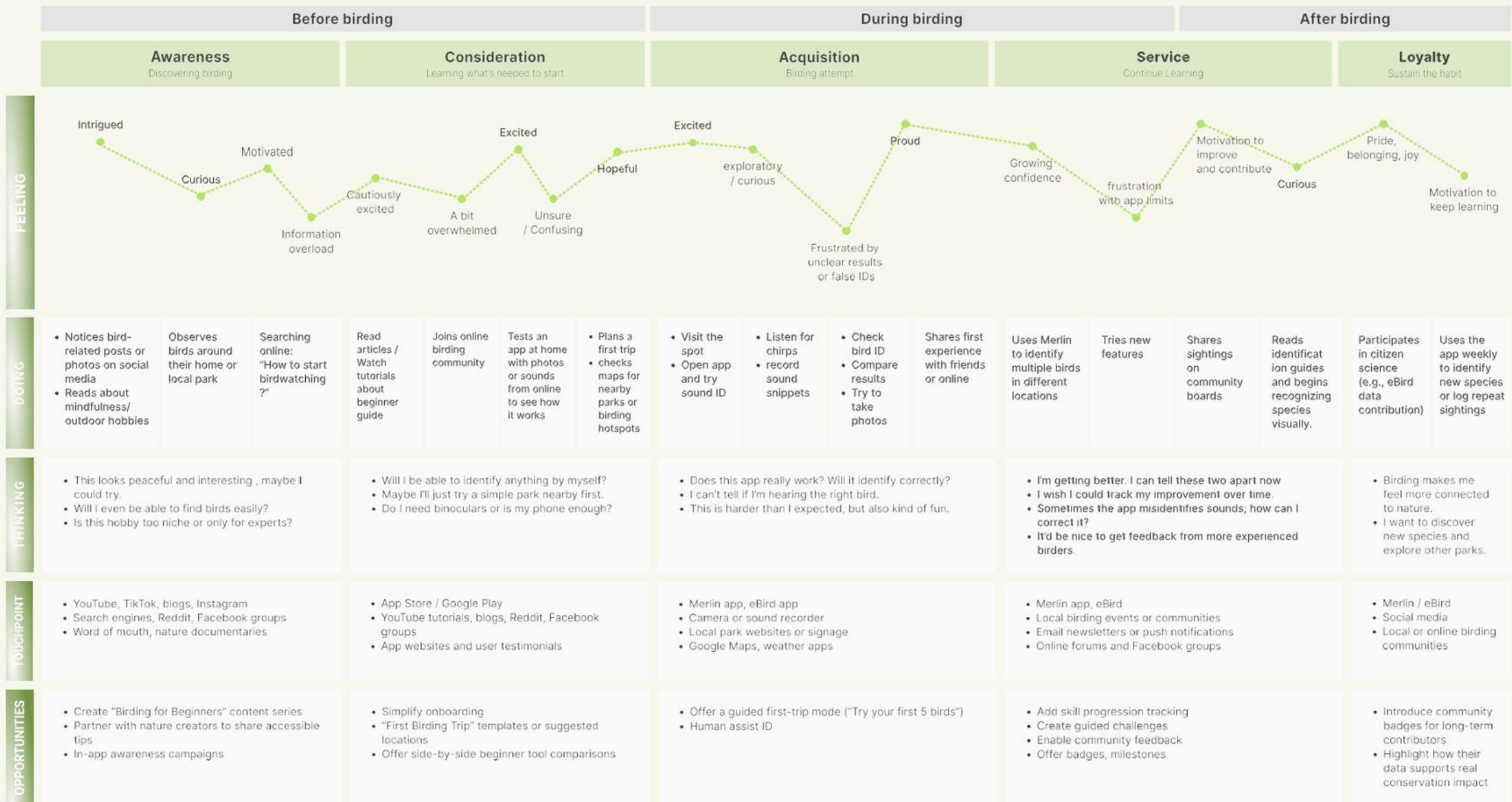
Behavior and usage scenarios

Usage scenario: When taking a walk in the local park or community on weekends; When resting on the backyard balcony; During a family camping trip.
Common functions: Sound ID is her first choice because it is the most direct; The second is Photo ID.
Information depth: Usually, only the most core information (such as names, pictures, and brief introductions) is browsed, without delving into distribution maps or details of life history.

The relationship with Merlin

Anna regards Merlin as a magical nature guide. It is friendly, powerful and free, perfectly meeting her immediate need to "ask if you don't know". The service, through an extremely low threshold and immediate positive feedback, transforms her momentary curiosity into the joy of learning and may thereby cultivate a long-term hobby.

© Novice Birders Journey



Personas



Enthusiastic amateur
David

Basic Information:

Demographic Name: David

Age: 45

Occupation: High School Physics Teacher

Location: Suburbs, close to a nature Reserve

Technical Ability: Tech Enthusiast, willing to try new tools

Short Description

David is a birdwatching enthusiast with three years of experience. He has binoculars and a worn-out field guide, and keeps a personal bird-watching list. He is no longer content with merely identifying common bird species. **He hopes to enhance his skills, discover more rare bird species, and systematically manage his observation records.**

Core requirements and goals

The main objective is to enhance the efficiency and accuracy of bird watching, especially when identifying birds with similar calls or appearances.

Knowledge requirement: He hopes to delve deeply into the behavior, habitats and migration patterns of birds.

Management requirements: Digitize your bird-watching records and be able to easily trace and statistically analyze them.

Motivation

1. Increase the number of bird species on the personal "life list".
2. Enhance recognition and professionalism.
3. Contribute one's share to the research and protection of birds.
4. Combine hobbies with his identity to stimulate students' interest in science.

Frustration

1. It is difficult to **distinguish** birds with similar calls (for example, various warblers).
2. Paper records are not **portable**, prone to loss and difficult to statistically analyze.
3. Traditional guidelines cannot provide **real-time and localized** probabilities of occurrence.
4. Lack of simple enough **educational tools**.

Behavior and usage scenarios

Usage scenario: Special trips to bird-watching hotspots; Set up bird feeders in the backyard and conduct long-term observations; When preparing for the weekend bird-watching trip.

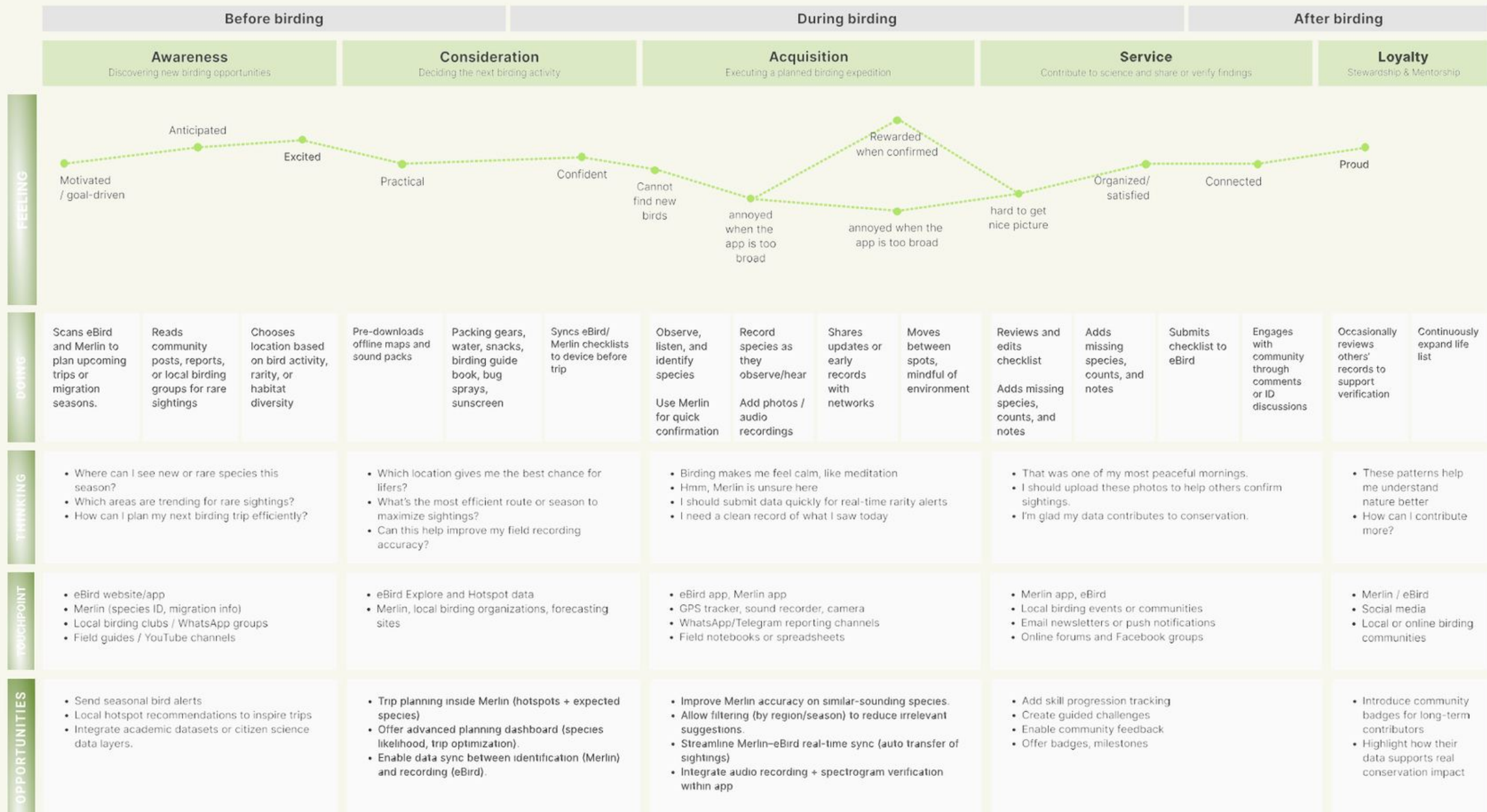
Common functions: All recognition modes will be used, and the best solution will be selected based on the situation. He makes deep use of the "My Observations" feature and actively submits lists to eBird.

Information depth: It will carefully study distribution maps, variations in chirping sounds, and comparisons of similar species.

The relationship with Merlin

David regards Merlin as a professional digital coach and journaling companion. It is not only an identification tool, but also a knowledge base and data management platform for enhancing skills. The service, by connecting with eBird, met his need to contribute as a citizen scientist, giving his hobby a more profound meaning and strengthening his sense of identity and community belonging.

© Experienced Birders Journey



Expert Interview

Michelle – Merlin Designer

Technical Challenge:

The Storage Crisis

- The primary technical issue is the Sound ID feature consuming up to 10 gigabytes of device storage.
- This is a critical accessibility issue, especially for users in global regions with **less storage capacity**.
- The engineering team has been doubled to address this and develop more ambitious features.

Competitive Edge:

In-House AI & "Magical" UX

- Merlin's AI model is developed in-house by Cornell ornithology experts, providing a significant competitive advantage.
- The app's **ability to display results in real-time** during a recording distinguishes it from competitors like BirdNET and creates a "magical" user experience.

Strategic Shift:

From Experts to Awareness

- The mission has evolved from converting users into advanced eBird contributors to **fostering general bird awareness** and **encouraging people to "know your neighbours"**.
- Success is now measured by **proxies for "bird love"** rather than traditional app engagement metrics.

Guiding Principles:

Caution & Authenticity

- Social features are deliberately avoided due to the 4-developer team's limited capacity for community moderation at scale. **Preventing a toxic community is prioritized.**
- The use of generative AI for content is rejected to **preserve user trust and content authenticity**, which is a key differentiator.

Ultimate Goal:

Connecting Interest to Action

The core organizational challenge is translating the interest generated by the app into real-world conservation behaviors like habitat protection.

Idea Opportunity

Curious Observer → Learner	→	On-site Discovery Maps: Provide bird map for local parks, offering self-service guidance and species likelihood.
Confident Lifelong Learner	→	Location-Aware Notifications: Alerts when a user arrives at a known bird hotspot or when a rare/new species is sighted nearby, enabling proactive discovery.
Confident Lifelong Learner	→	Guided Learning Journeys for Novices: Curated, structured paths (e.g., "Backyard Birds 101") to introduce key species and identification concepts.
Confident Lifelong Learner	→	Progressive Skills & Feedback Loops: Features that offer constructive feedback on user IDs, track skill growth, and introduce advanced differentiation challenges
Connected Experience	→	Social / Community Layer: In-app layer to connect Novices with local Experts, facilitating the sharing of sightings and ID review.
Efficient Citizen Scientist	→	Life List Integration (eBird Sync): Seamless, automatic sync of Merlin sightings with eBird so all users immediately join the global life list.
Efficient Citizen Scientist	→	Gamified Contributions: Introduce Milestones and Badges explicitly linked to real-world conservation goals (e.g., habitat mapping, species count completion).

Pivot

On-site Discovery Maps

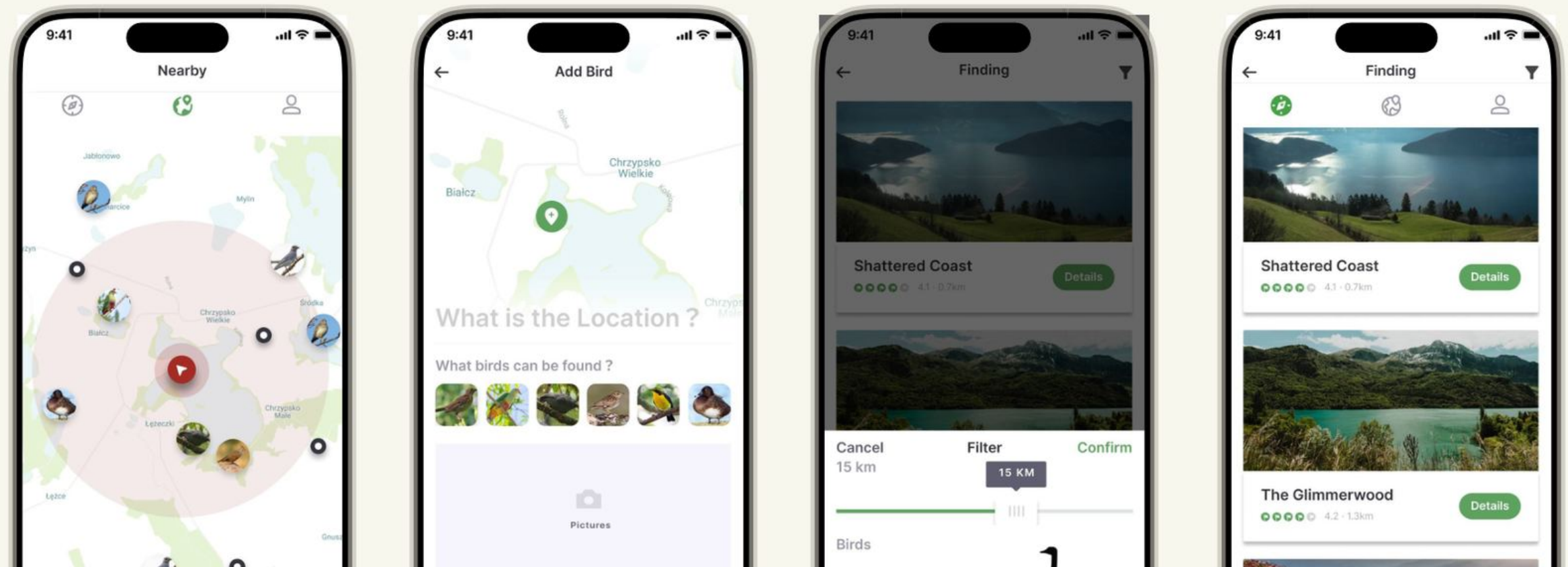
Provide bird map for local parks, offering self-service guidance and species likelihood.

Actionable Step

- Begin with popular city parks
- Provide “local park packs” showing common species, seasonality, and hotspots.

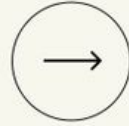
Expansion

- Interactive offline experiences: audio guides, AR cues, trail gamification
- “Adopt-a-park” collaborations for conservation challenges

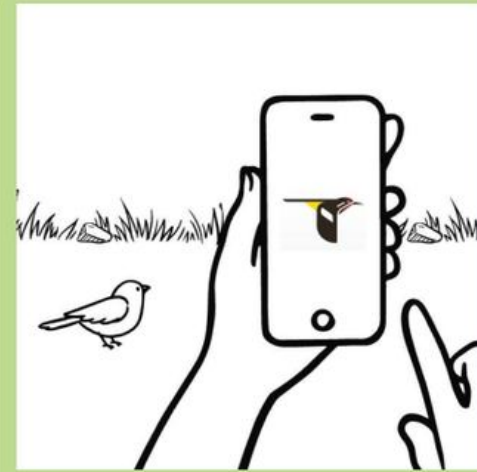
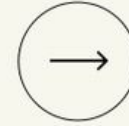




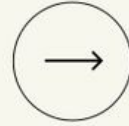
While walking through the park, a young birder hears a bird singing nearby. Its melody catches his curiosity.



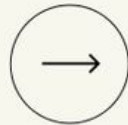
He notices the bird perched in the grass, still singing clearly. He decides to identify it.



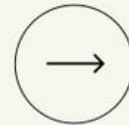
He pulls out his phone and opens the Merlin Bird ID app to **capture the bird's song/photo**.



Later, he approaches a **large community map display** installed in the park.



Using the sticker provided by the app or park station, he **marks the spot where he heard the bird**.



Each sticker becomes a **shared story**, connecting visitors, **creating a living bird sound map**, and **building a community of listeners**.

Long term plan

Efficiency & Quality

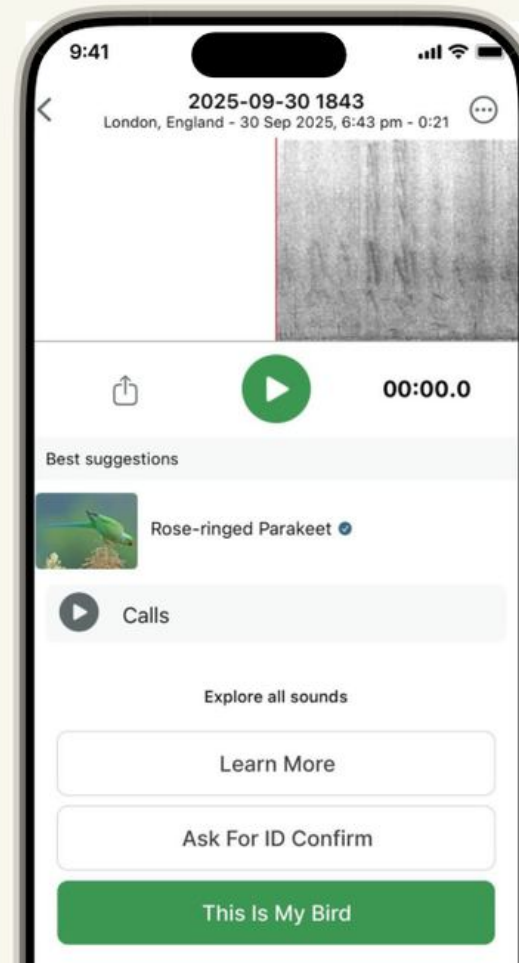
Assisted Human Review

User Value

Novice gets expert feedback;
Expert gains meaningful contribution role.

Business Value

Crowdsourced data verification at scale,
Improves data reliability



Similar Species Comparison



Long term plan

Cultivate Community

Social / Community Layer

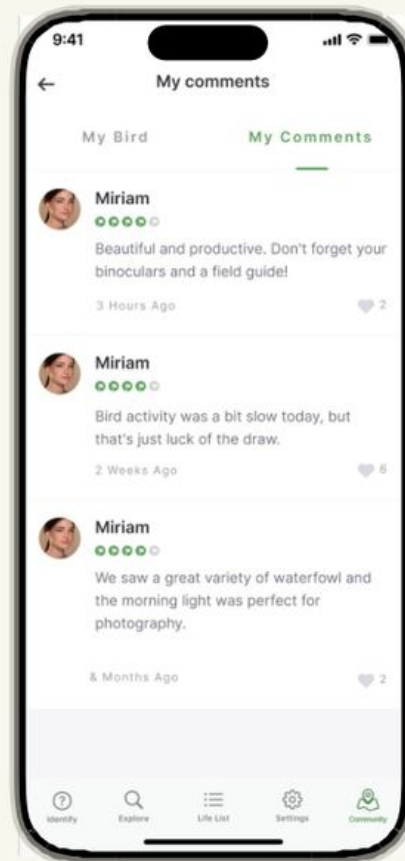
In-app sharing, light social features, and Enthusiast-Novice mentorship connections.

User Value

Provides vital human feedback and sense of shared mission.

Business Value

Creates a defensible, sticky platform ecosystem



Life List Integration

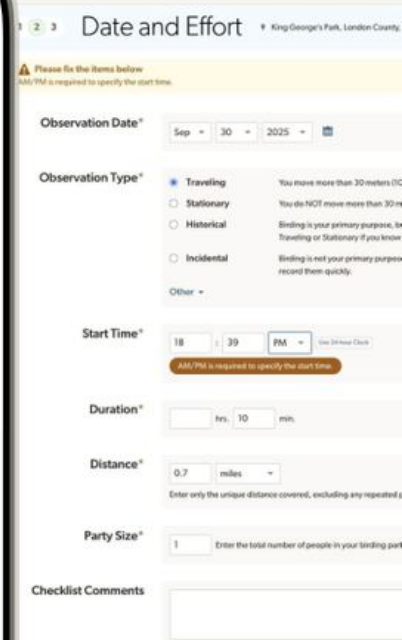
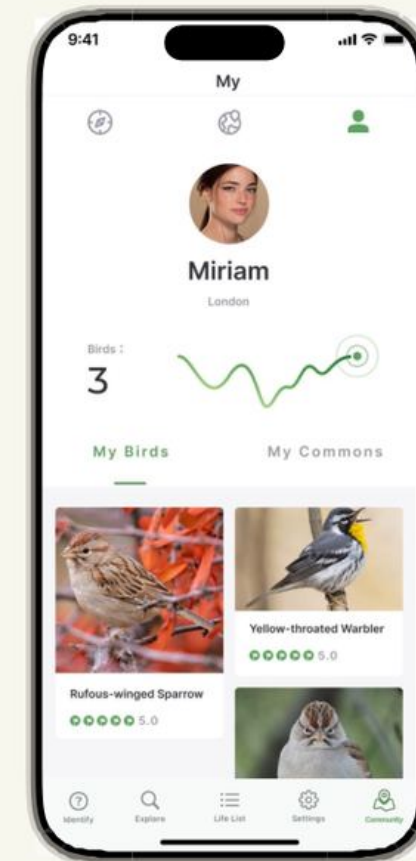
Integrate eBird ranking and data contribution sync

User Value

Effortless Contribution: Removes double-logging, making science contribution invisible.

Business Value

High-Volume Data: Builds stable data pipeline for all future features.



That covers
our flight plan!

Thank you.

