



Faculty of Science,  
Engineering and  
Computing

# Search and visualization for mobile in the course of Ornithology

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**Module:** CI7820

Media Specialist Practice

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MSP Individual coursework

## **List of deliverables**

1. [BirdApp Prototype](#)
2. BirdAppScreenRecording.mov
3. [BirdApp Webpage](#)

# MOTIVATION

“Bird watching is a rapidly expanding niche. To a certain extent, it constitutes a social response to increased urbanization and growing public awareness of nature and environmental concerns. In addition, it offers participants a sense of escape and freedom.” (*N Collins-Kreiner, 2013*)

“Bird watching is an activity for recreational or social reasons, that is concerned primarily with the direct enjoyment of a relatively undisturbed phenomenon of nature. Participants hope to get in touch with nature, escape the stresses of daily life, and enjoy views of natural landscapes and wildlife.” (*Connell, 2009; Nyaupane, et al., 2004; Sinha, 2001*).

“Bird watching and its more specialized forms of “birding” and “twitching” have long been pastimes in many Western nations. However, in the past few decades, it has made the transition from a primarily local hobby to a major component of niche tourism” (*Connell, 2009*). The numbers of birdwatchers has increased dramatically in wealthy countries, and parallel growth has occurred elsewhere, particularly in the English speaking world. With their greater income and mobility, growing numbers of birdwatchers have had considerable impact on tourism in some places. In Britain, the membership of the Royal Society for the Protection of Birds (RSPB) has doubled in recent years, with current membership exceeding one million. Birds Australia claims 7500 members, and has been experiencing a similar rate of growth (*Connell, 2009*).

“In recent years bird watching has attracted millions of new followers and is considered to be one of the world's fastest growing hobbies. In 2004 a survey conducted by the RSPB found that 3.1 million people in Britain claimed to bird watch on a regular basis.

That figure has almost doubled and the RSPB now say that around 6 million Britons enjoy bird watching. It seems that bird watching, which was once considered the preserve of nerds in anoraks, has become fashionable.

Modern technology is helping bird watchers too. The internet means that rare sightings can be instantly recorded, there are many bird guides online and there can be more communication between bird watchers across the globe. Bird song and apps can be downloaded onto iPhones to help with identification and digital cameras used for taking instant photos of birds from a fair distance are affordable for most.” (<http://www.britishbirdlovers.co.uk>)

# AIMS AND OBJECTIVES

- Redesign the RSPB iPhone app
- Provide better search experience for birdwatchers in the field
- Make the app for birders with different skill level
- Research and exercise the role of an information architect/content strategist (e.g. research methods and principles, and then use them to create, select and organise material for a media-rich mobile application)

# METHOD

The following steps were taken to achieve the goals insuring the user is at the centre of the design process.

## 1. Heuristic evaluation and user review of British Birds App

**Visibility of system status:** There are very few feedback messages on errors. Bird page toolbar doesn't indicate user's location or status. The comparison functionality is too simplistic and isn't optimized for Mobile.

**Simple and natural dialogue:** On the home screen first time users experience cognitive overload caused by usage of scientific terms and link formatting. Also it's unclear which way the user should go to view the bird list: Taxonomic Index (English) or Alphabetic Index (English). The 'Language' link seems to be misused. The information does not appear in a natural and logical order. The "Contact us" button is more appealing than information about how to use the app or tips for novices.

**User control and freedom:** Clearly marked exits.

**Consistency and standards:** Consistent.

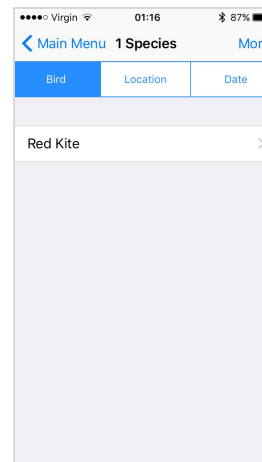
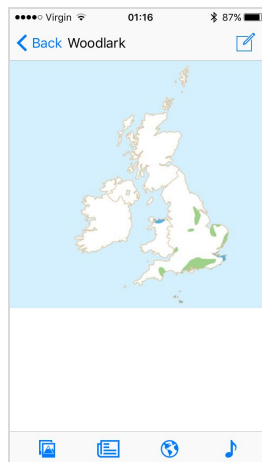
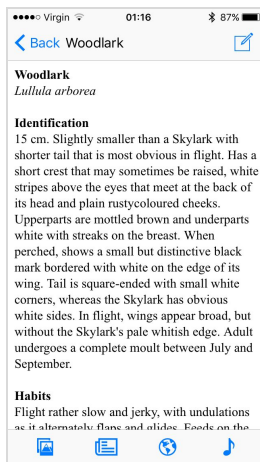
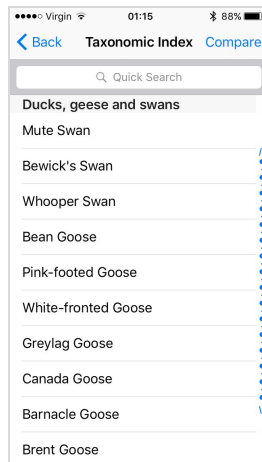
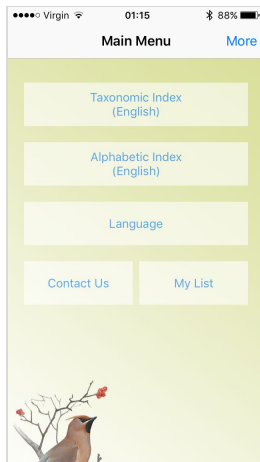
**Recognition rather than recall:** The bird lists are not supported with imagery (plain text lists).  
Instructions for the use of the application are not visible or easily retrievable whenever appropriate.

**Flexibility and efficiency of use:** System can cater experienced birdwatchers only.

**Aesthetic and minimalist design:** Graphic design of the application is dated and sometimes reminds a text document instead of application. Poorly formatted and styled.

**Help users recognize, diagnose, and recover from errors:** Error messages expressed in plain language (no codes), precisely indicate the problem, don't always suggest a solution.

**Help and documentation:** Help and documentation are provided in an unusual place and are not searchable. Some of the help explains trivial things.



The British Birds App screenshots.

### Customer's review summary:

- No identification
- Lists without images
- Poor layout
- Blandest home page
- No Google Maps location
- No "sightings" lists

#### A bad book on a digital platform - why bother? ★★☆☆☆

by TimothyCharles – 11 Apr, 2017

Since the best, in my mind, birding app. Twitcher was discontinued I've been trying to find something at least it's equal. I still haven't. This eGuide kicks off with the blandest home page you've seen since the Spectrum was launched. Nowhere does it give any help at all in identifying birds. You've got to know what bird you're looking at before you get a picture. There's no Google maps location facility, no "sightings" list - it's boring, bland and bleak and, in making no use of digital functionality, is no better than a small reference book. Wish I hadn't bought it.

#### Not Good For Identifying Birds ★★☆☆☆

by Hval01 – 23 Dec, 2015

As others have written, this app really is not good at helping a person identify a bird. This app seems to assume you know what bird you have seen. I had rather hoped that for an app that would guide me along in identifying what I have seen. For example, the other day I saw a bird carrying a sheep of in its hoofs. It had a short curved beak, wings curve backwards like a swallow aircraft. It's predominant colour was brown, it had a roundish head and beady eyes. So... I would hope that I would be guide through by being asked questions and shown basic outline shapes. E.G. QU 1. Size QU 2. Wing shape (you pick from some outlines) QU 3. Head shape QU 4. Beak shape QU 5. Tail feathers long, medium or short? QU 6. Predominant colour QU 7. Patch colours QU 8. Wing underside colours QU 9. Length of legs QU 10. Location type (hill, sea, loch, flatland, in a hedge, swamp etc) And any other relevant questions. As for the bird that I did see, I worked out that it was not a penguin.

#### Disappointing an buggy ★★☆☆☆

by leggoeast – 23 Mar, 2015

This is little more than a list and not much use when trying to identify a bird unless you want to scroll through endless pages. Badly laid out, poor pictures, and occasionally crashes. In desperate need of updates as it's very buggy. On the plus side, it has lots of bird call recordings. Expected more for my fiver.

#### Dissappointing ★☆☆☆☆

by bottlefish-stu – 3 Apr, 2016

I wish I'd read some of the other reviews... As others have said, this is absolutely useless for ID'ing birds, as the only way you'll find any information on or see photos of a bird species is to first select its name in a text based list.

#### Gutted!! ★☆☆☆☆

by Fourq2 – 24 Mar, 2016

Spent a fiver for an app that assumes I already know the birds I paid to identify. I mean, if I already knew the damn bird I wouldn't want an app that calls itself the eguide to British birds, right? I deleted this app within minutes of purchasing it, and bought Bird ID for £2.99 instead. Guess what? I found my bird as well as found out that for less money Bird ID does more.

*The reviews screenshots are from the iTunes.*

## 2. Competitor analysis



### **Collins Bird Guide on the App Store, rated 4+**

Initially made for an iPad, the application looks jammed and cluttered on a mobile screen. Imagery is too small to touch or look at on iPhone 5. The amount of information presented at the same time is overwhelming. Navigation is complicated and unusual. It's the most expensive app on the market of Bird guides. Styled in consistency with Collins printed guides and materials. Has curated lists of confusable species and video clips for 794 species.



### **Birds of Britain Pro: A Field Guide from iSpiny on the App Store, rated 4+**

A guide to 299 British birds, with photos songs and calls.

iCloud syncing, bird identifier (size, colour, bill length), record keeper.

Made for an iPad, the application looks jammed and cluttered on a mobile screen. Unprofessional look.

## 3. Contextual Interviews

Two events were organized to observe the birders in the field: a trip to WWT London Wetland Centre and a garden birdwatch.

During the trip to the London Wetland Centre there was an opportunity to interview a resident birdwatching expert. The interviewee gave insight into birdwatching practices and helped identify birds.

The three essential pieces of equipment birders use in the field are a Field Guide (usually it's a pocket book), a Checklist or a Diary and Binoculars. (*Harrap, 2012*)

There are two ways how birders approach bird identification and search, depending on their age, domain and technical expertise. More senior audience prefers printed pocket guides or books and quick sketches. Younger "twitchers" heavily rely on internet search engines, identifying apps and opportunity to share

findings immediately. A nationwide survey of hobbies and interests found that 32% of men aged 16 to 25 have been birdwatching. (*The Times & The Sunday Times*)

## 4. User research

According to CBI survey “Birdwatching tourism from Europe”, the general characteristics of birdwatchers are: 40-70 years of age (can be found in all age groups), likely to be members of local bird or nature organisations. They use bird/nature books or magazines. Birdwatchers travel mostly alone, in couples or in small groups. They tend to be well educated and relatively affluent, more often male.

### **Twitchers (around 10%)**

Fanatical birdwatchers, are predominantly male, they want to see as many birds as possible as quickly as possible to add them to their checklist. Once they have seen one, they move on. Some even engage in competitions to accumulate the longest species list. They bring their own equipment such as telescopes and binoculars and are not really interested in other activities.

### **Enthusiasts (around 50%)**

This segment is equally divided between men and women. They are bird and nature lovers who generally have a profound knowledge of the fauna of a destination. They are slower travellers than twitchers, as they also like to relax. They generally spend more on birding tours and equipment than is common in other birdwatching tourist segments.

### **Casuals (around 30%)**

Casual birdwatchers include travellers interested in other outdoor and nature-based activities such as hiking or wildlife watching.



### **Novices**

Frequent query reformulation

Going back (navigate back to search results)



### **Experts**

- More pages examined
- Going Deeper
- Less time spent
- Advanced terminology
- Effective evaluation

## **5. Organization, Wireframing and Prototyping**

The Information Architecture has changed in the following way. Organization Schemes remained the same with the current application: alphabetical and taxonomical. The Organizational Structure was changed from hierarchical to matrix, as it allows users to determine their own path since content is linked in numerous ways.

During the ideation phase for the new app, paper wireframes were created in order to establish the main user flows. The wireframes were made to give clear graphical answers to the following questions: where the user is, what they've found, what's around them and what should they expect to see.

Then the hi-fidelity prototype was created in Adobe Xd in order to flesh out the details, i.e. lists, search results, labeling, icons, etc.

Later, based on the mockups, an interactive prototype was tailored in Invision.

## **6. Formative evaluation**

The formative evaluation was made using the prototype printouts in a discussion with a bird-watcher specialist.

The prototype has received an overall positive response. The following suggestions were made:

- To have less options to choose from by default in the Bird Identifier
- To add an Advanced Mode to the Bird Identifier for experienced birders, containing options like: ambient light situation, more refined beak shape selector
- To add a "swipe left" action to get instant search results
- To add the Perfect Match and Suggested Species sections



# DELIVERABLES

## Prototype

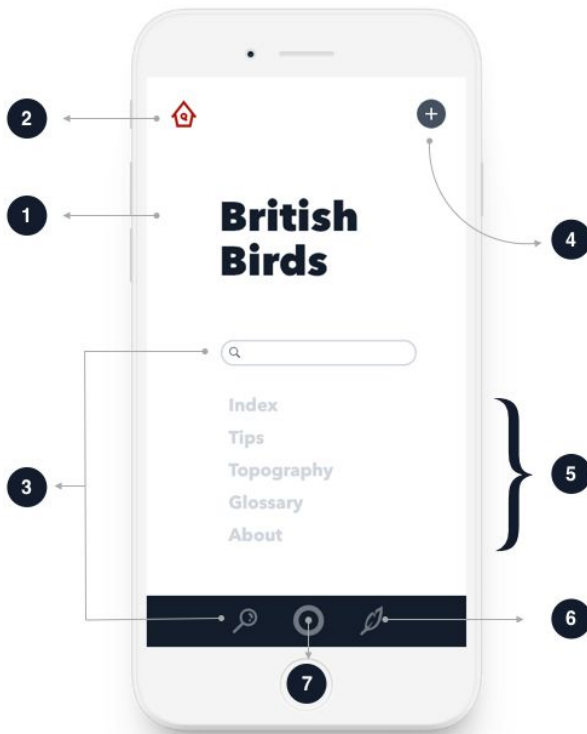
The main deliverable in this study is the hi-fidelity interactive prototype made on the Invision platform.

It contains 38 static clickable screens, and supports the main application use cases (please refer to the screen recording video).

### Navigation Pages: *Onboarding*

This is the first set of screens which introduces the app and demonstrates what it does to the first-time users. To establish the user expectations of the app and to achieve the brand recognition the screens were designed with the RSPB key visuals (colour, typeface, illustrations).

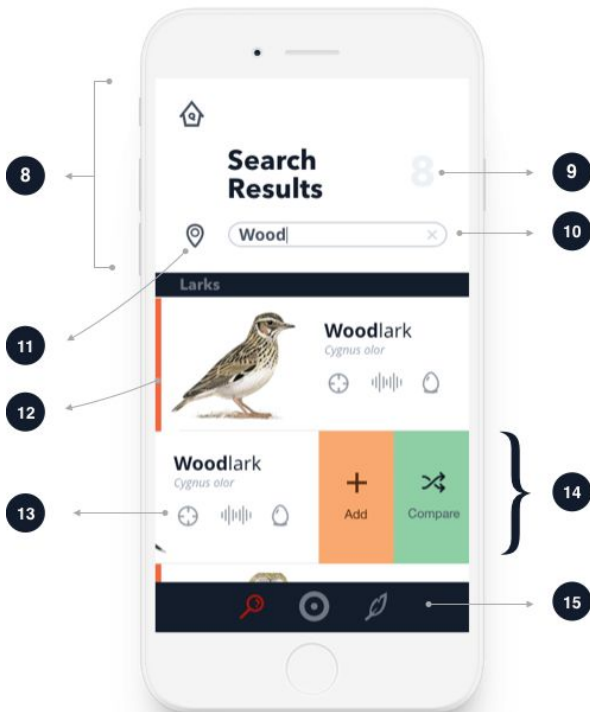




## Home Page

The home page contains the following elements:

1. Name of the application
2. Home button
3. Search field and button  
(searches the bird database)
4. "Add a new bird to a life-list" button (see more details about this function further below)
5. Area designated to help, documentation and tips links
6. "Life-lists" button (see explanation further below)
7. "Bird Identifier" button



## Search Results Page

After the user uses the Search function he/she will be shown the Search Results page with the following elements:

8. Navigation area. A sticky header with the information where the user is ("Search results" page is the above example)

9. Number of search results found

10. Search box, including auto-suggest and instant results. It displays the current query and allows it to be edited

11. Shows the map with user location and birds that are likely to be spotted nearby

12. Color code for the bird conservation status

13. Informational features: bird distribution, bird sounds, bird family

14. An individual result consists of a big bird image preview, Compare and Add to Life-list features

15. Faceted navigation sticky toolbar for Search, Bird Identifier and Life-lists

## Bird Identifier

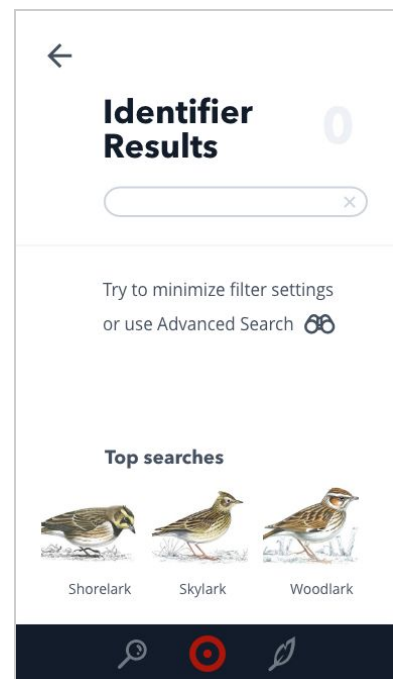
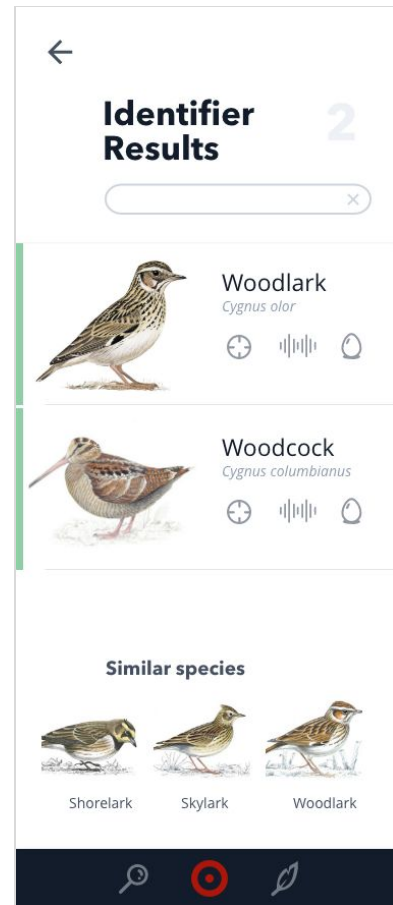
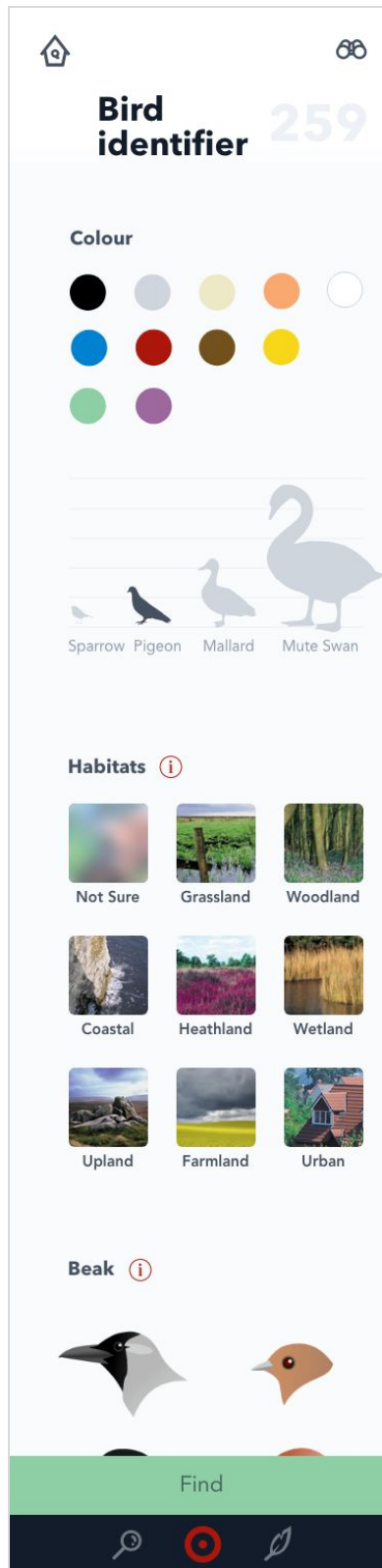
It's possible to navigate to the Bird Identifier page from any page in the application using the main toolbar.

Bird identifier can be used for visual bird identification which supports the Advanced Mode.

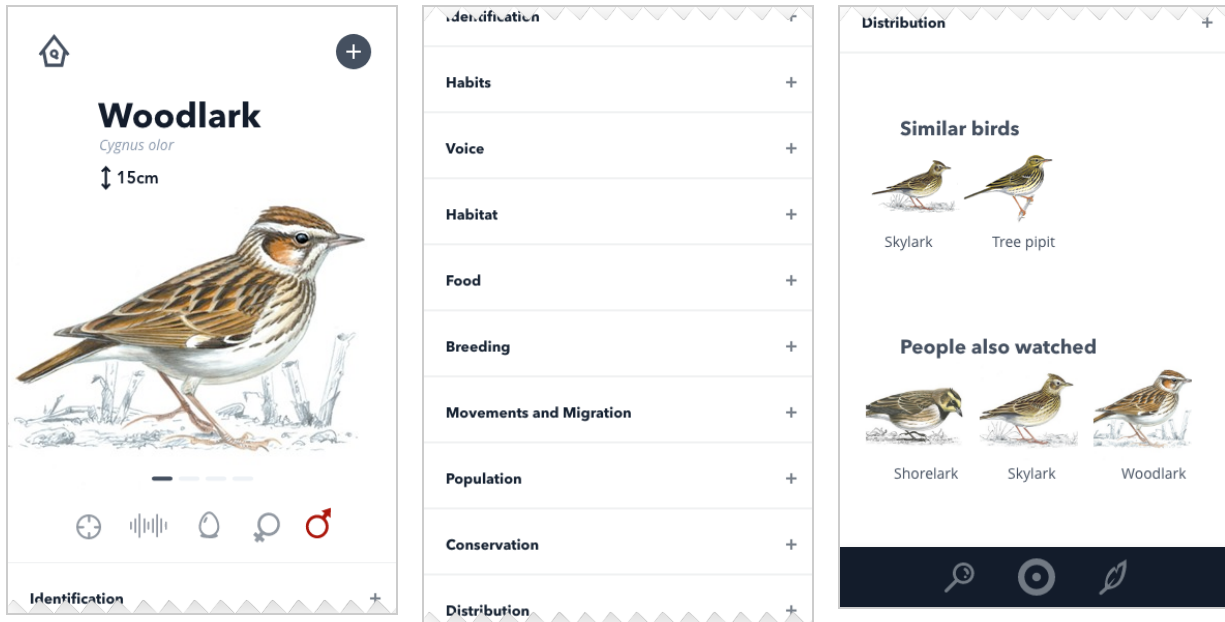
Advanced Mode is more suitable for experienced birders as it allows to see a wider colour range, ambient light level and beak varieties.

Interactive process will help to narrow down the search. Swiping left will show instant results at any point of filtering.

Zero Search Results Page - support and advice for query reformulation ("Did You Mean ...?" and auto-correct)



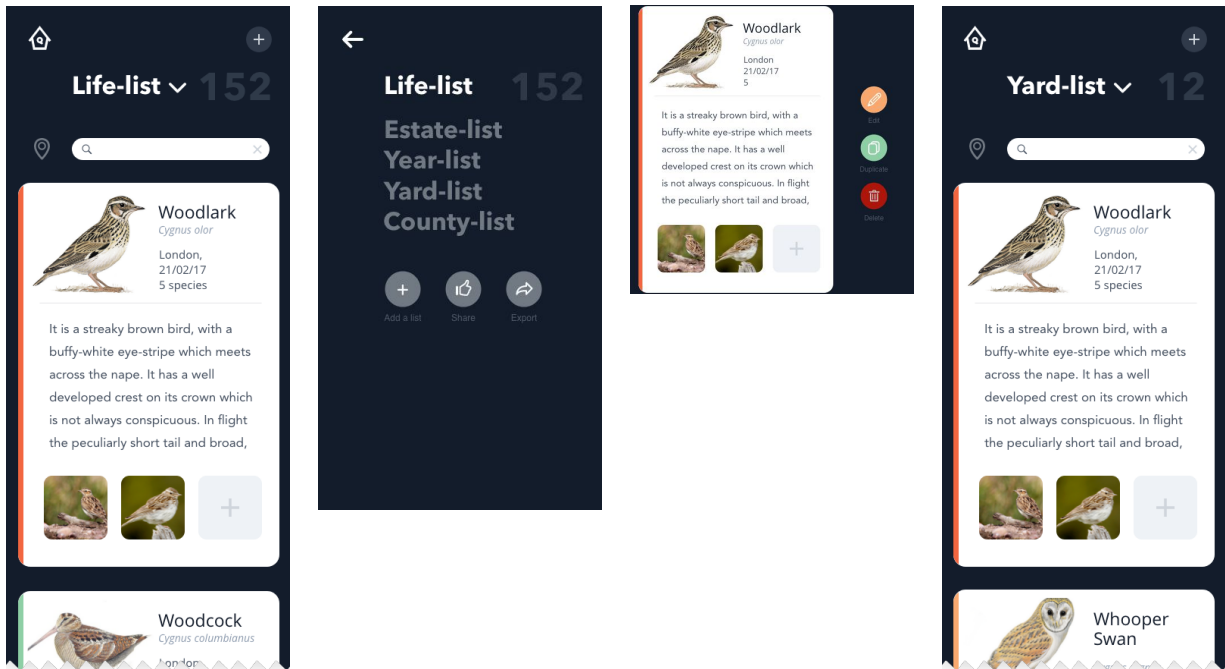
## Destination Page



The Destination Page (Bird Page) contains the following bird species' description elements: name in English, name in Latin, size, image carousel, hyperlinked icons to see bird distribution, call, family and gender. On the second screen we have an accordion, vertically stacked list of informational items about the bird with the show/hide functionality. When a label is clicked, it expands the section showing the content within. It's possible to have one or more items open at a time. The next section has a list of similar birds and birds seen by other birders.

Sticky top navigation allows the user to quickly add the bird to a life-list or go back to the Home Page. The bottom toolbar helps to navigate to a new search, bird identifier or users life-lists.

## Lists



A life list, or life-list, is a list of all biological species seen by a person. The phrase is particularly common among bird watchers, some of whom compete with each other to have the most complete list. Looking over these hard-won entries gives immense satisfaction. Each entry evokes memories of travel in interesting places, and is nothing less than a "trophy" testifying to bird-spotting successes! ("The Life List.")

The Life-list feature gives the user an opportunity to create and keep multiple lists. Lists contain bird cards which include: Date and Time, location, gender, bird photos and videos, number of birds seen. Cards can be as detailed as user needs.

Sharing the information is a key prerequisite of birding. Birder can share and export his lists. The location icon shows mapping for watcher sightings.

## DISCUSSION

This study has proposed the new design of RSPB app. Three main contributions have been made. Firstly, a more visual approach in presenting the search results and index was advised. Secondly, it was suggested to add the Bird Identifier page, and additionally help articles to reach the wide audience of the novice birdwatchers. Thirdly, the new life-lists were created considering different user needs and level of birdwatching experience.

The decisions about how much information to present on the Index and Search Results pages were the most difficult. It was decided to display only the representational content components, such as the bird image (50%), species name (in English and Latin) and 3 most frequently referred to bird characteristics: distribution, call and family. This layout does not include the bird gender and if it's juvenile or not, which is very important in visual identification, as adding more icons would overload the visual space. Having mentioned the above, during the user testing it would be crucial to identify how users prioritize the visual identification cues. Depending on the results it might be possible to add the 4th icon or to swap existing ones for more relevant cues. The bird information block also supports swiping left to “add to compare”. Swiping right can be added to show extra species' images (female and/or juvenile).

The second most important design decision is listing the search results and the index items. These are displayed as a vertical list to allow rapid visual scanning (Russell-Rose & Makri, 2012). By default the search results / index items list are displayed in an alphabetical order. The application allows sorting the lists using two methods: taxonomical for the index list and geospatial for the search results. Search results based on user's current location can be displayed as a two-dimensional map or as a list view.

The Bird Identifier functionality is based on the RSPB desktop version. The challenge here was to show the immediate results while modifying the search options on the mobile screen. This was made possible by leveraging the Swipe Left motion.

Comparison is a very important part of any search experience, however, comparing items on mobile can be a challenge. Comparing two or more items often requires a lot of pogo-sticking back and forth between the product pages. General approach to the comparison process in the redesigned application remains

the same: Select and Compare. “Add to compare” (the Swipe Left motion) functionality is new and to be complete it needs a feedback message to notify the user what bird has been added to compare. After adding another bird to compare, another message should appear to show feedback and offer to click the Compare button. When user lands on the comparison page he/she will see two stacked modules. The user then needs to scroll up and down to view the different data sets. The “one on top of the other” comparison pattern was selected as the most suitable for this project, but the way information is structured needs to be changed. Information which is presented in the comparison mode should be ready-made to assist decision-making. To do this the following is recommended:

- Structure the data using bullet points and tables
- Colour code similar data to improve scannability of the list
- Don't crowd the list with too much content, show only the important features □
- Use icons

Big buttons, high contrast and bigger imagery were proposed to make the app more usable and accessible to users in the field.

It wasn't possible to test the prototype in the field due to the technical limitations of the prototyping platform. This study is the first step towards enhancing user experience of the RSPB mobile app. We hope that further user tests and prototyping will confirm our design suggestions and could eventually lead to a new great product.

The author wishes to gratefully acknowledge Dr Jaroslav Francik for providing his valuable suggestions and discussions.



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