naturelocator

PlantTracker

Butterfly Conservation
Saving butterflies, moths and our environment
UK Butterfly Survey

Conker Tree Science
Leaf Watch

BatMobile

UK Ladybird Survey

aquainvaders

sealifetracker

RINSE
Reducing the Impact of non-native species in Europe

University of Bristol

UKEOF
ENVIRONMENTAL OBSERVATION FRAMEWORK

SEPA
Scottish Environment Protection Agency

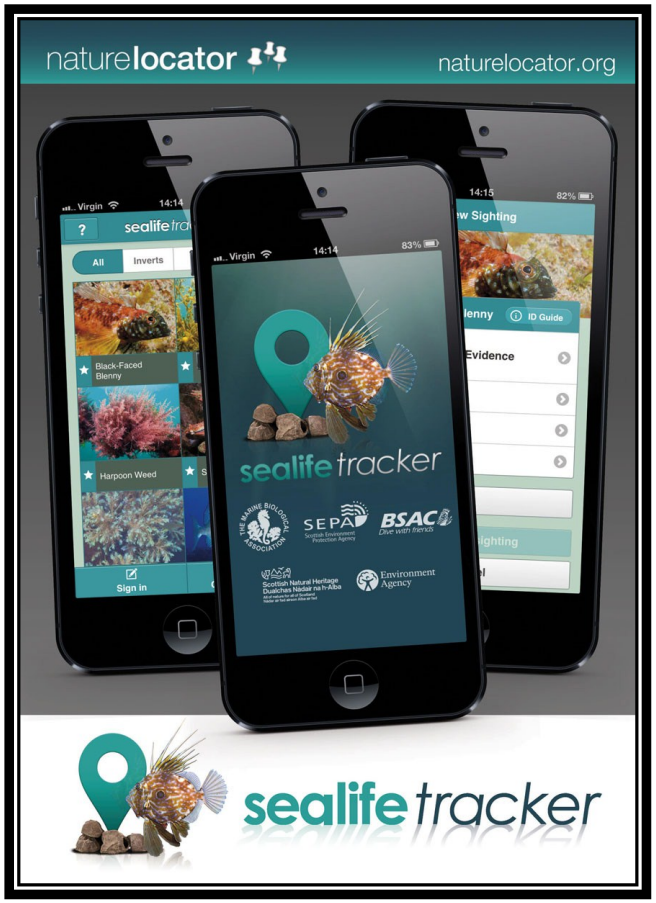
cameras
A CO-ORDINATED AGENDA FOR
MARINE, ENVIRONMENT & RURAL AFFAIRS SCIENCE

Living With Environmental Change

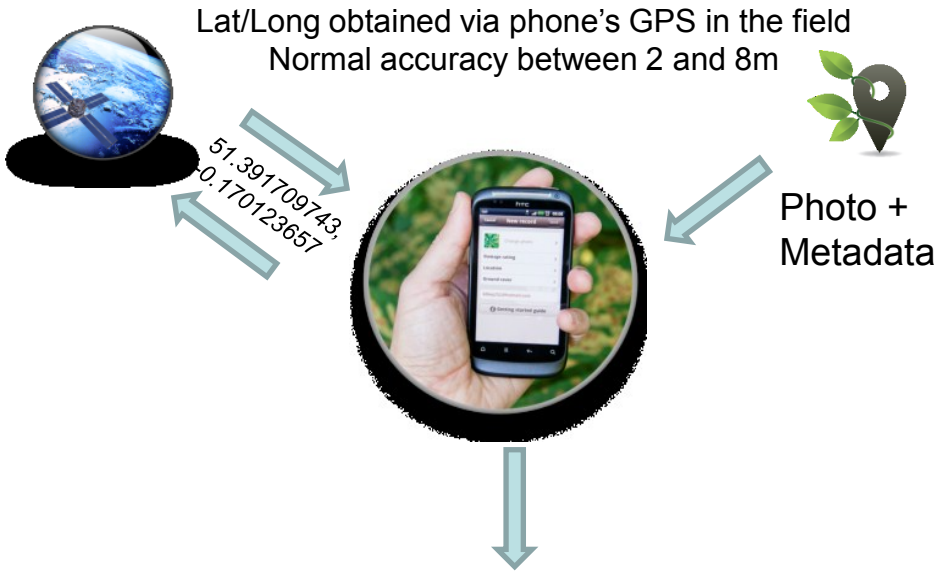
What we do

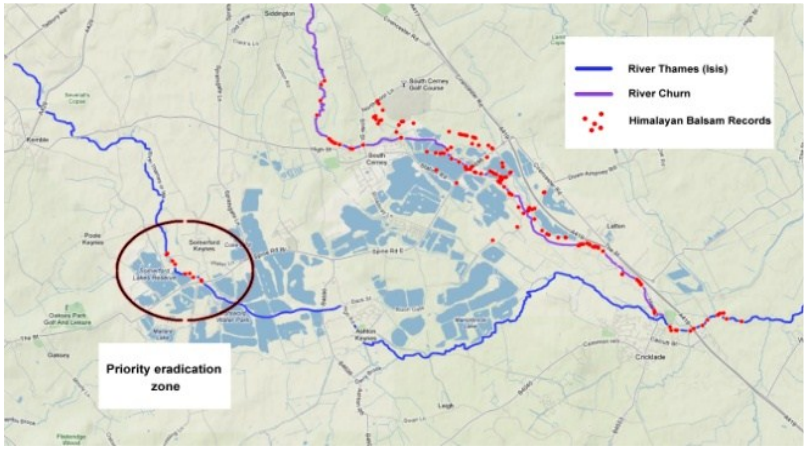
- Work with **researchers** and **organisations** to engage the **public** with data collection
  - Design bespoke smartphone applications
  - Innovate to take the technology in new directions
  - Provide data visualisation tools to enhance feedback

The Products

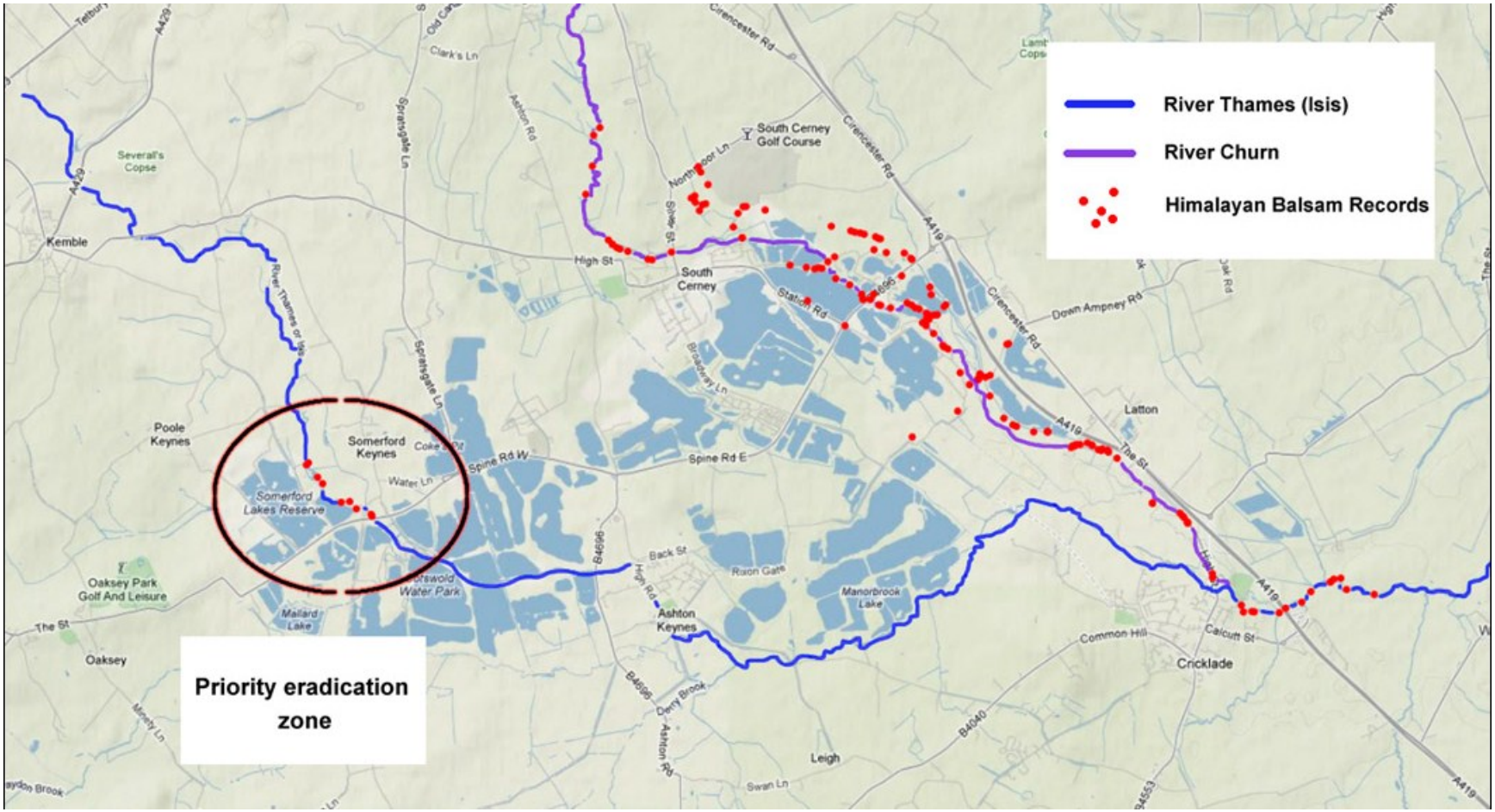


How it works


Lat/Long obtained via phone's GPS in the field
Normal accuracy between 2 and 8m
51.391709743,
-0.170123657
Photo +
Metadata


River Thames (Isis)
River Churn
Himalayan Balsam Records
Priority eradication zone

Making a difference

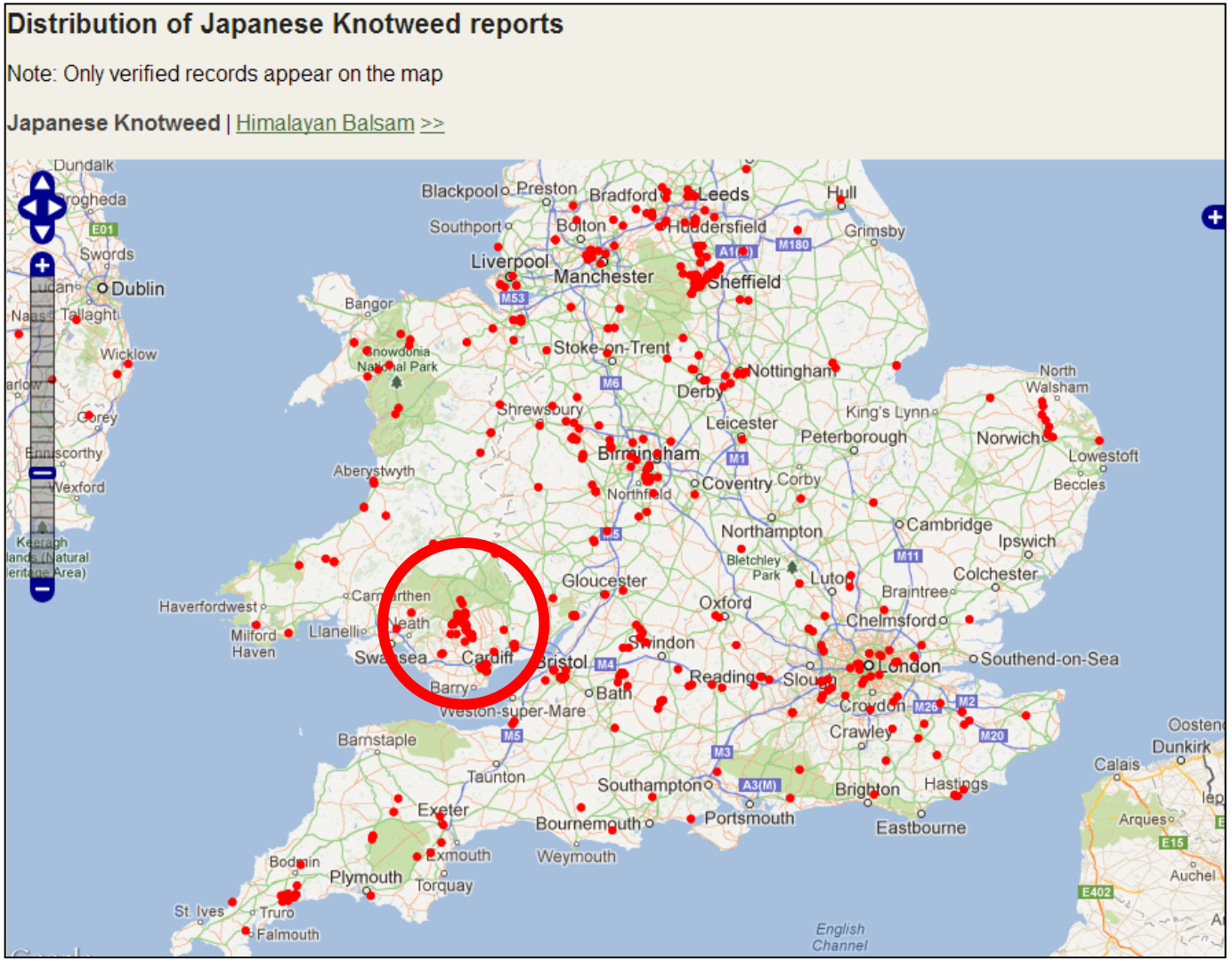


Some statistics

PlantTracker

- 15,000 downloads
- 6,000 records of invasive species since Aug 2012
- Appearance on BBC Countryfile
- Data has already enabled early intervention
- Cost saving to the Environment Agency
- SNH and SEPA are new partners

PlantTracker results



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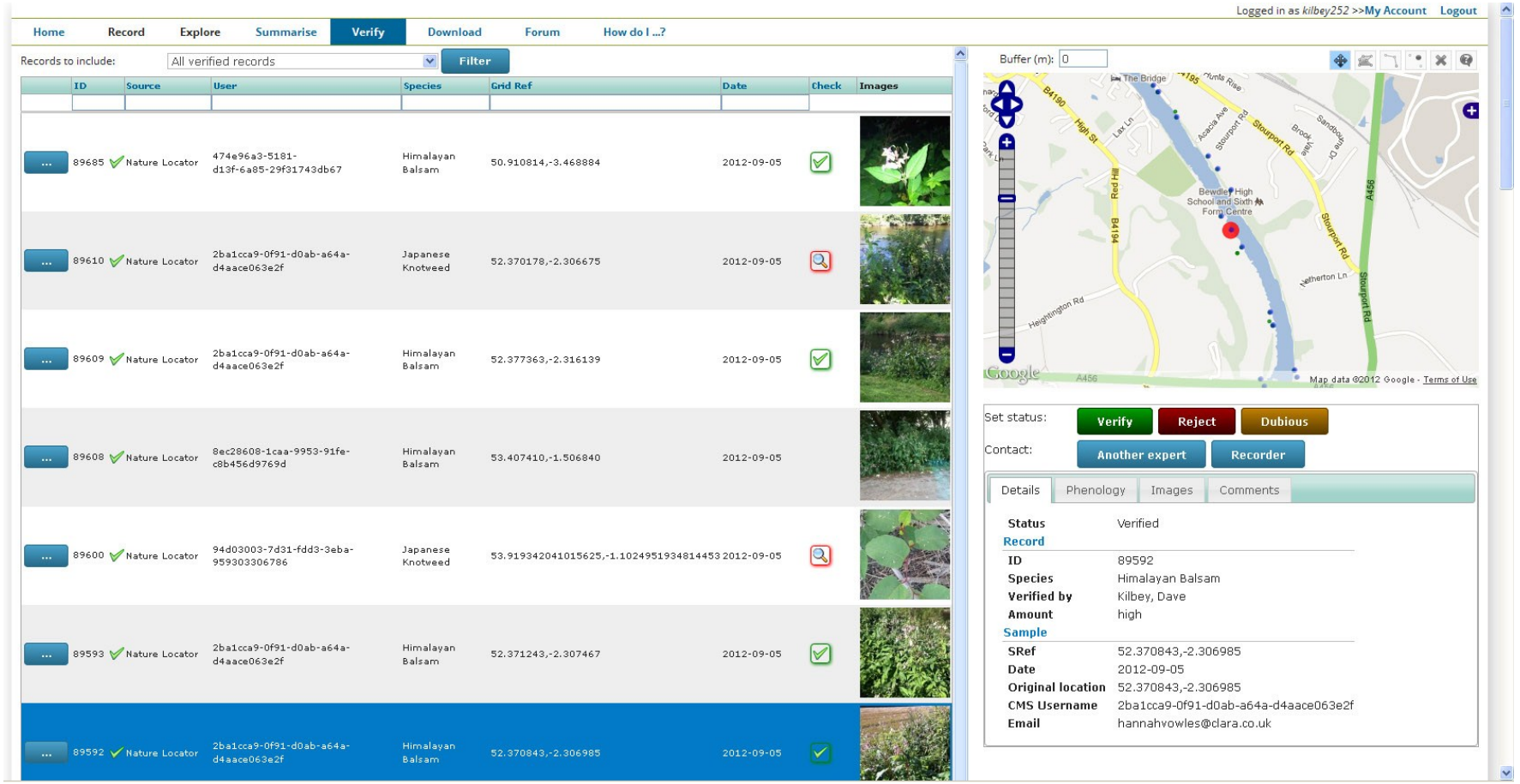
Indicia

iRecord

Centre for Ecology & Hydrology
NATURAL ENVIRONMENT RESEARCH COUNCIL

BRC Biological Records Centre



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And now for something different…

BatMobile

Test if we could build an app capable of automatically identifying the UK's bat species from their ultrasonic calls

Collaboration with bat researchers @

- Institute of Zoology and UCL
- Bat Conservation Trust

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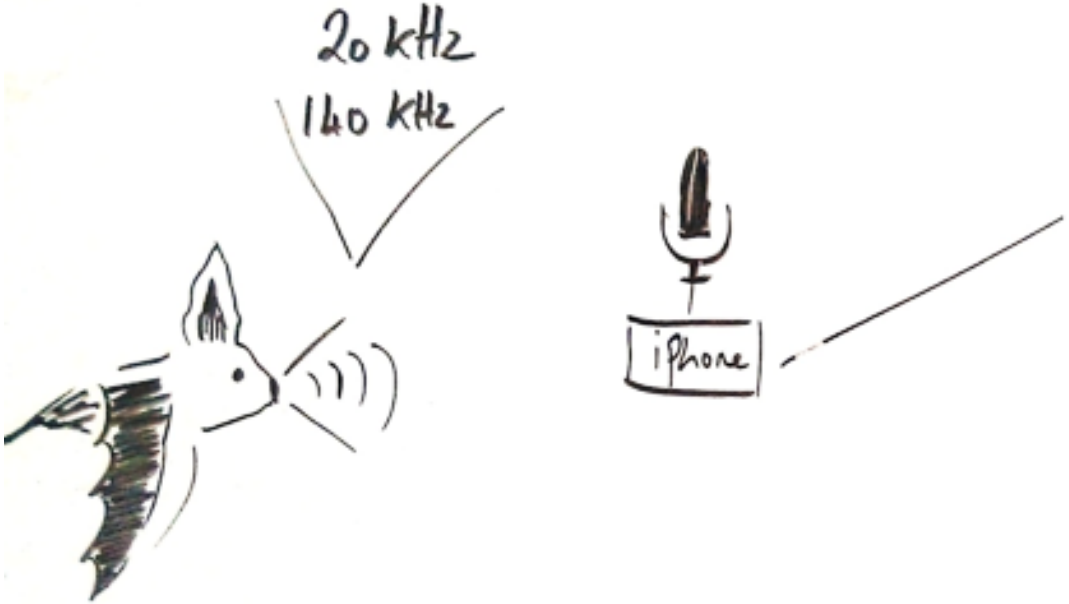
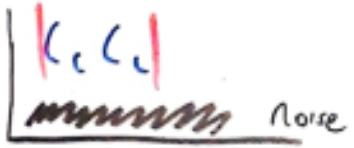
BatMobile project

Services such as **SoundHound** and **Shazam** enable people to identify songs they hear, using a mobile app.

BatMobile aims to apply the same principle to identify species of bats from their ultrasonic calls.



1. Record .Wav
   High Sample rate
2. Display Via Sonogram S/W
3. Enable Call Isolation



4. Call Characterisation
5. Pass to ANN

? How Much on-phone?

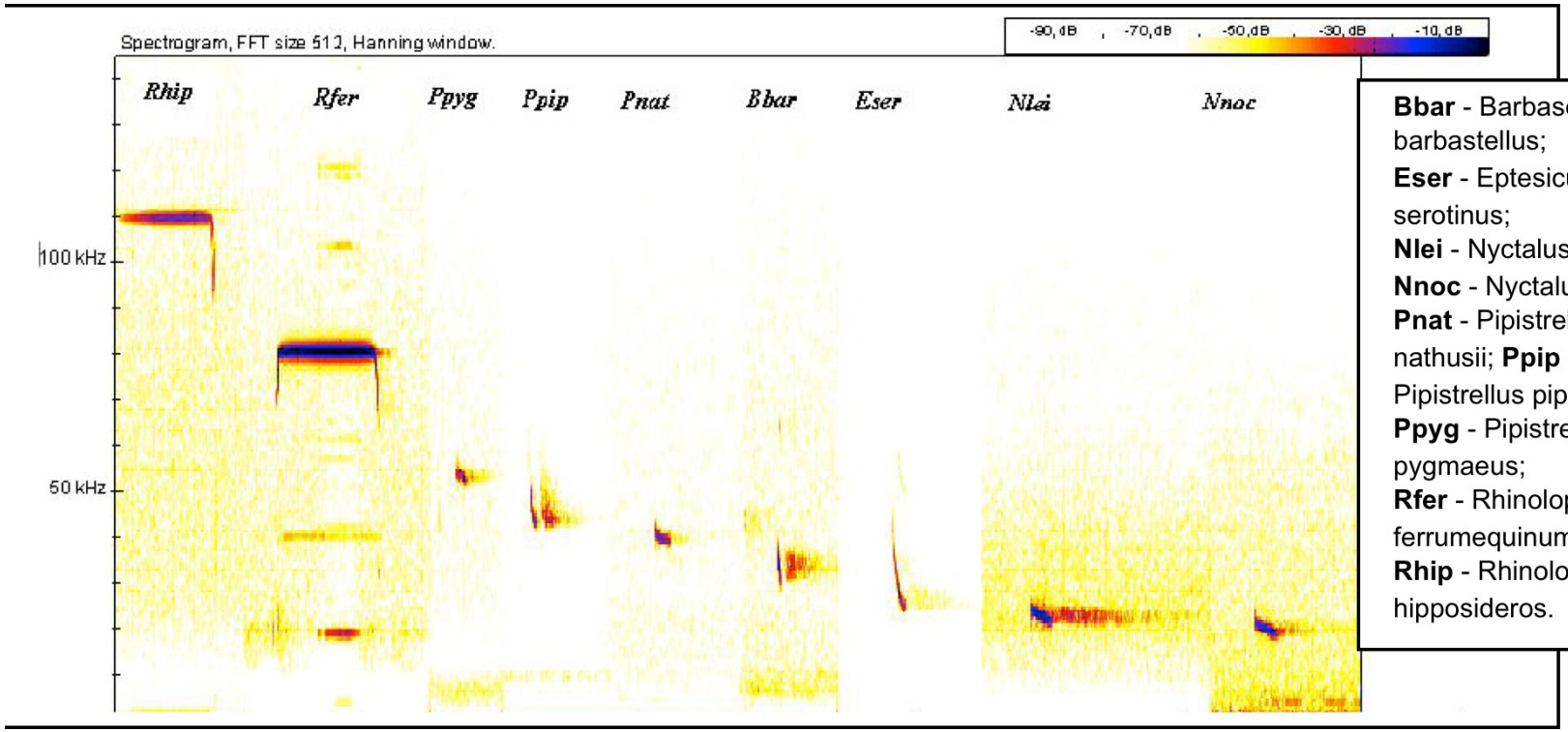
? Approximate ID on-phone then
Pass to Server for + accuracy?

Key Challenges

Challenges:

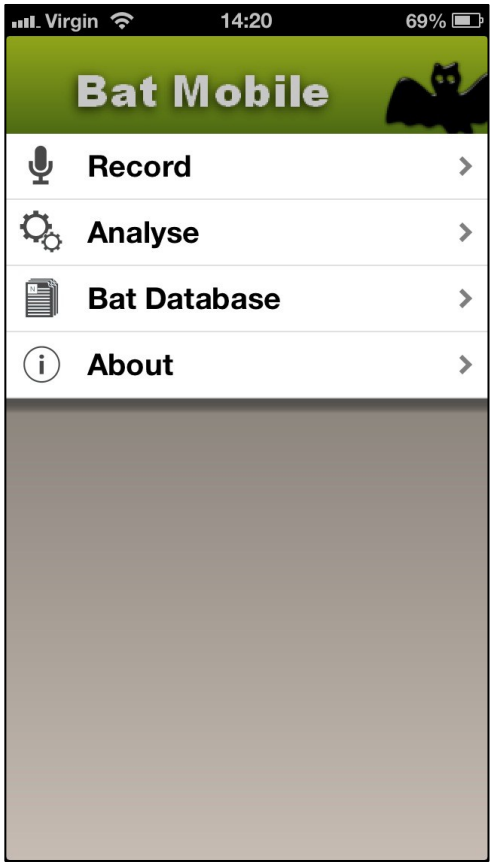
- Creating accurate algorithms to characterise bat species by call
- Creating accurate ID matrix
- Real time on a mobile
- Online vs. offline analysis
- Ultrasound => need a special microphone

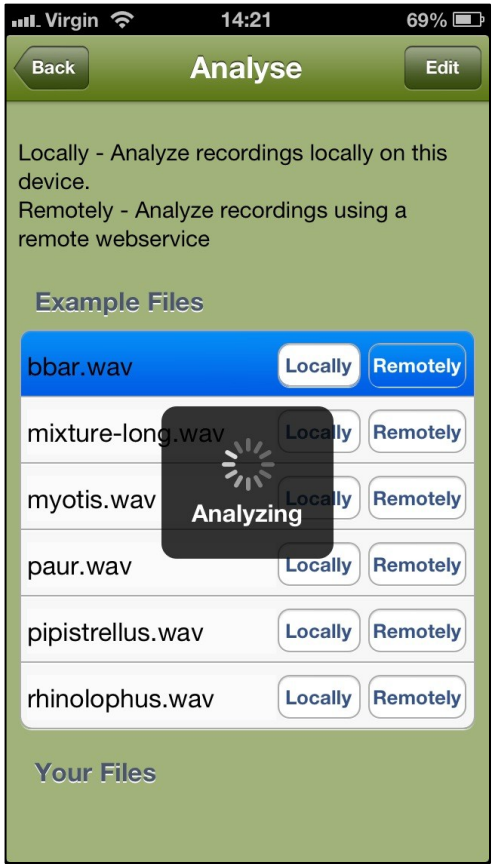
Identifying bats by their calls...

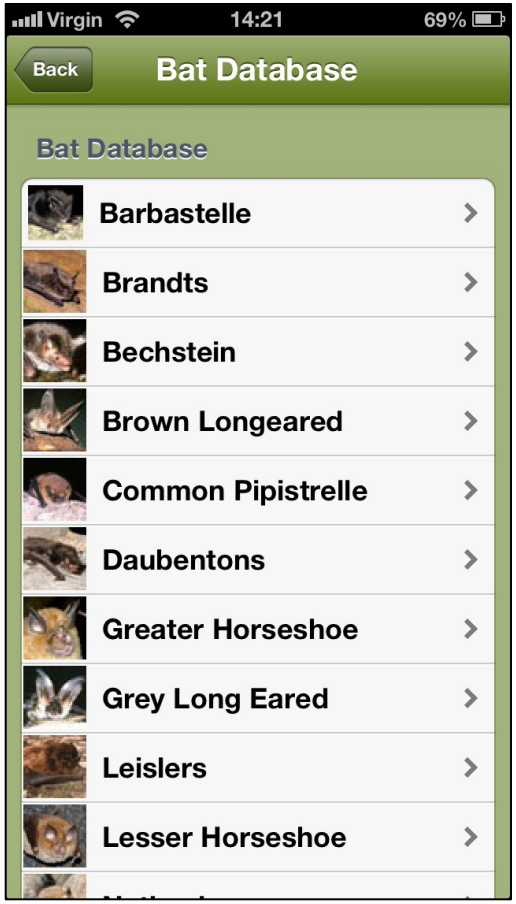


Bbar - Barbasella barbastellus;
Eser - Eptesicus serotinus;
Nlei - Nyctalus leisleri;
Nnoc - Nyctalus noctula;
Pnat - Pipistrellus nathusii; **Ppip** - Pipistrellus pipistrellus;
Ppyg - Pipistrellus pygmaeus;
Rfer - Rhinolophus ferrumequinum;
Rhip - Rhinolophus hipposideros.

BatMobile Screengrabs







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BatMobile Summary

- Current mobiles are up to the job
- However, bats are tricky since they use ultrasonic frequencies
- Some are trickier than others
- We need to work with a bat bio-acoustic specialist to enhance the feature extraction and ID element
- Currently also working on a project with the CEH to auto-id Orthoptera.

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Why crowd sourcing/citizen science works for the public

Why it works for us

Why it works for the public

- Immediacy
- Minimal effort
- Usability (paramount for public engagement)
- It appeals to the “geek” in us
- I can use my phone to do something useful…
- The apps are informative
- Feedback loop

Why it works for us

- High quality data
  - Photo attached (verifiable… most of the time)
  - Geo-located
  - Other metadata
- Digital data
  - Data flow consistent (to BRC – iRecord - then to NBN)
  - No work converting it from another format
  - Accessible by anyone (potentially)
  - No time lag for data to appear in public domain

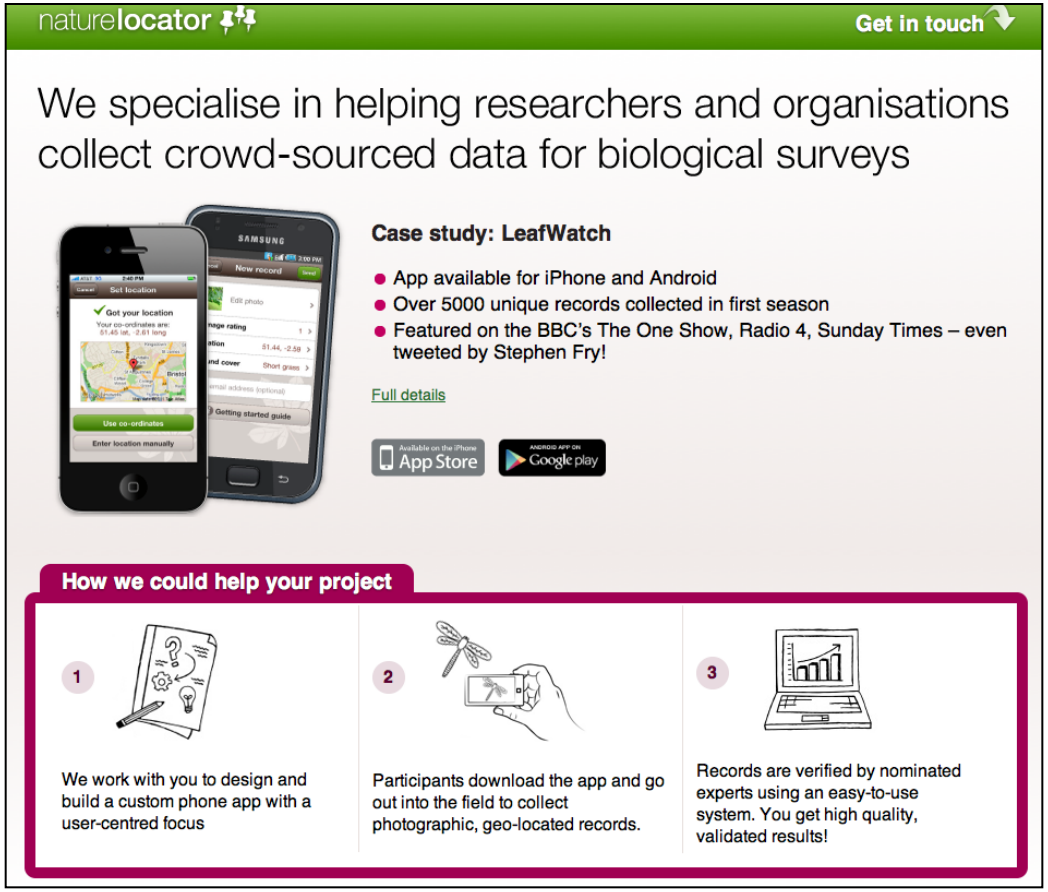
Contact Details

Email: d.kilbey@bristol.ac.uk

Website: http://naturelocator.org/

Mobile: 07985 914111

naturelocator.org



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