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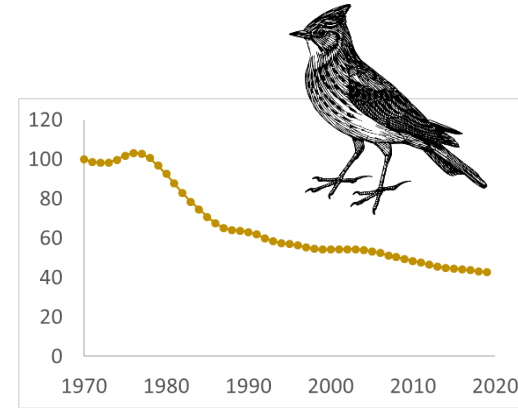
Precision citizen science: Spatially targeting recording effort through adaptive sampling to improve biodiversity monitoring

Simon Rolph | @simon_rolph

Volunteer-collected biodiversity data

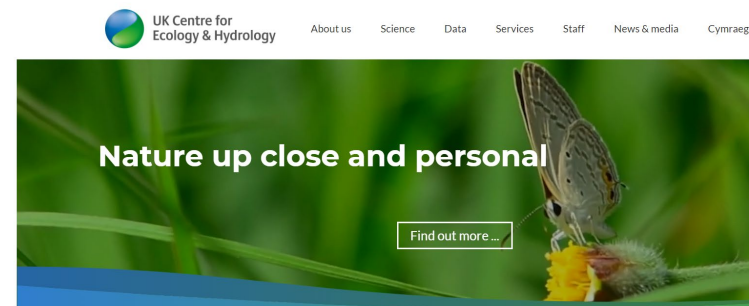
1 Assessing the state of nature:

- to evaluate trends, distribution
- to assess impacts of interventions



2 Benefiting individuals:

- connecting to nature
- supporting wellbeing



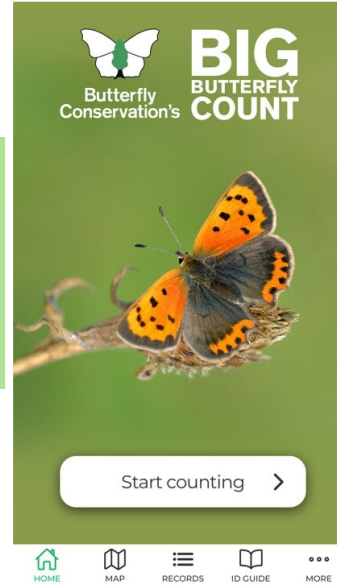
3 Supporting action for nature

How are citizen science data collected?



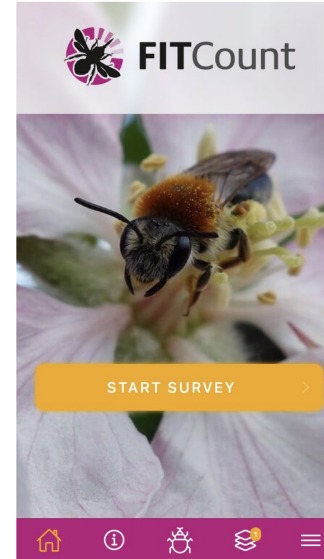
Structured monitoring

- Revisit specific sites
- Follow a protocol
- Gather data on abundance



Semi-structured recording

- Follow a protocol
- Participate where you want to



Unstructured recording

- Record what you want
- When you want
- Many records gathered



Unstructured recording is spatially uneven

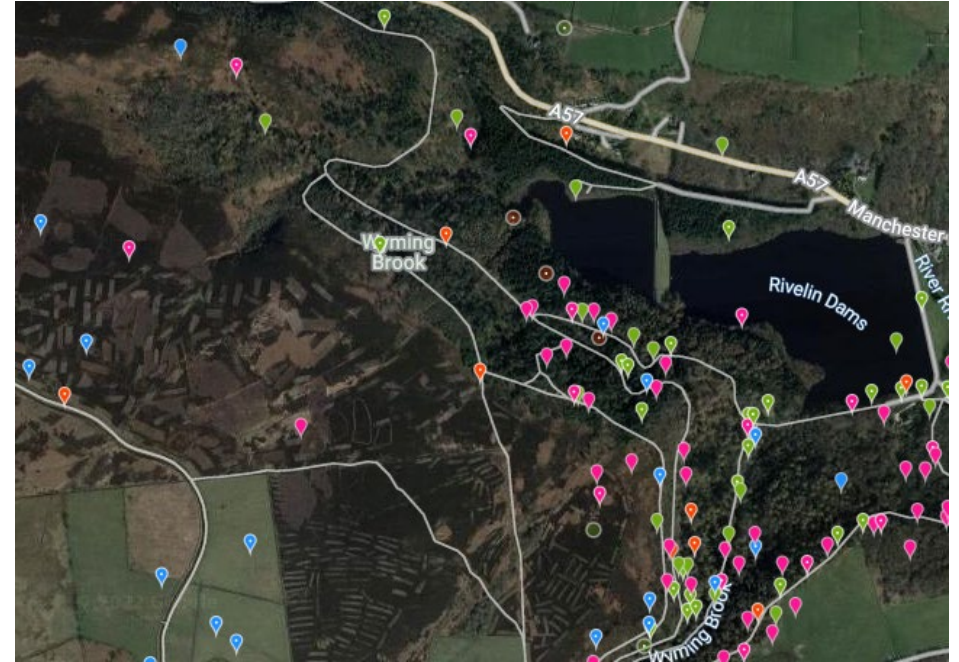




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All records are valuable, but...

we don't simply need *more* records, we need *more informative* records

So, how do you choose where to record?

The DECIDE Project

Recording nature where it matters

Multidisciplinary team

Funded by NERC



Ecology, citizen science, statistics & data science

Michael Pocock
Tom August
Susan Jarvis
Thomas Mondain-Monval
Simon Rolph
Rich Burkmar
Katty Baird



Social science

Alison Dyke
Rachel Pateman
Jennifer Rao-Williams
Sarah West



Earth observation

Emma Wright



Computer science & citizen science

Advaith Siddharthan
Janice Ansine
Mike Dodd



Butterfly Conservation

Saving butterflies, moths and our environment



GiGL



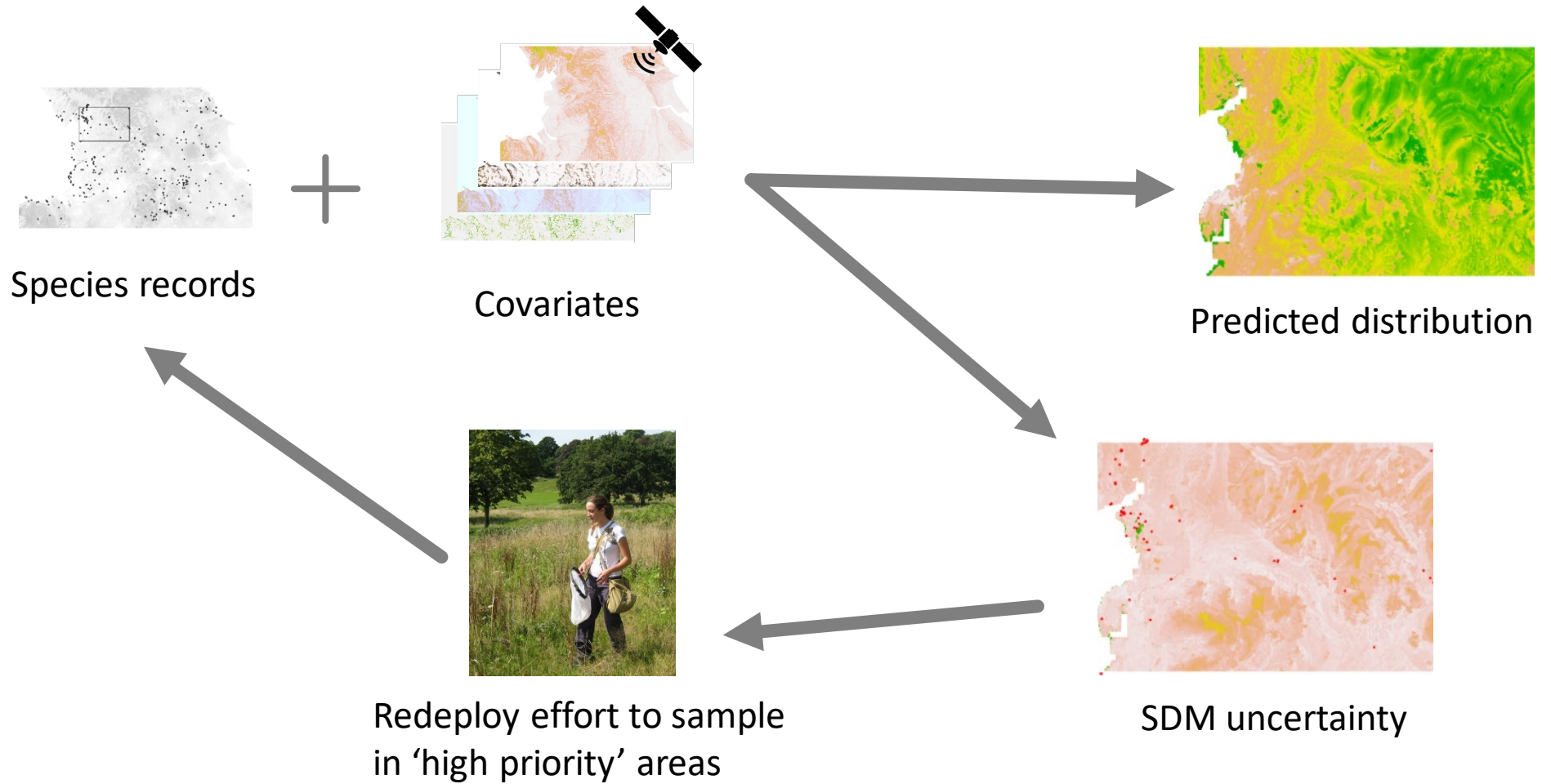
Visual data science

Greg McInerny
Cagatay Turkey

Co-design at the heart

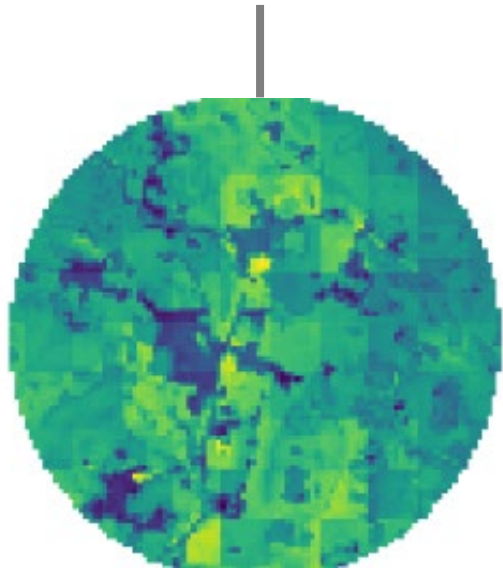


“Adaptive sampling” to improve SDMs

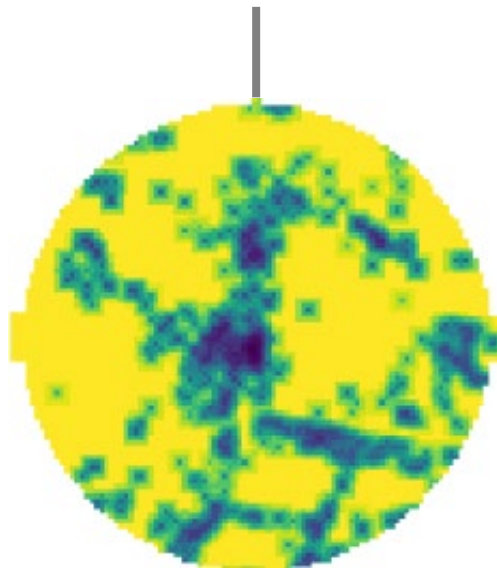


Identify priorities for recording

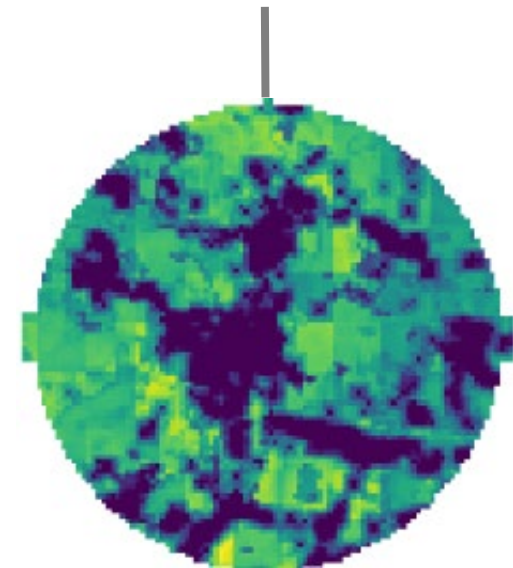
Where are models of species distribution least confident?
(Uncertainty combined across species)



Where have observations already been made?



Where is it best to collect new observations?



The DECIDE Tool

<https://decide.ceh.ac.uk/>

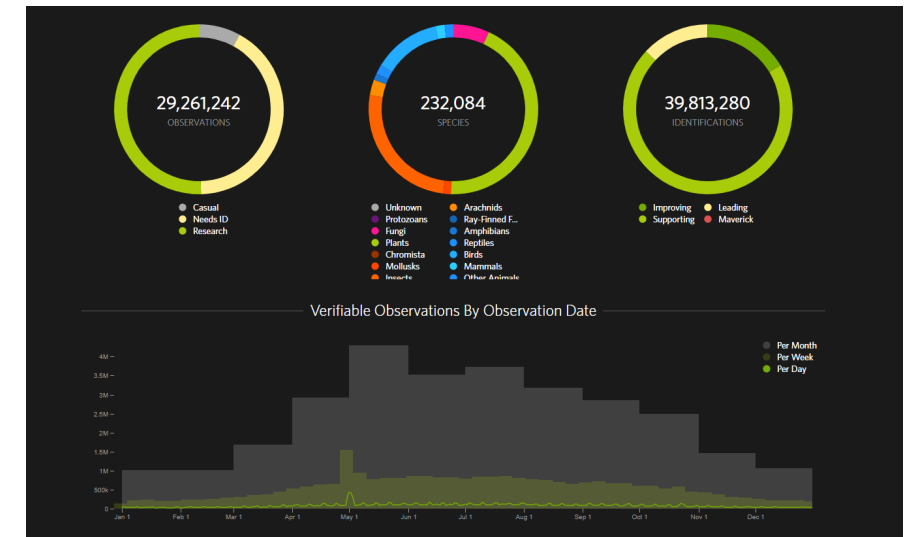
5 mins to demonstrate the tool

MyDECIDE

Personalised feedback

- Relate someone's recording activity (on iNaturalist/iRecord/iSpot) to the DECIDE recording priority
- Regular personalised emails
- Shows potential of the technology

A bit like the iNaturalist year in review →

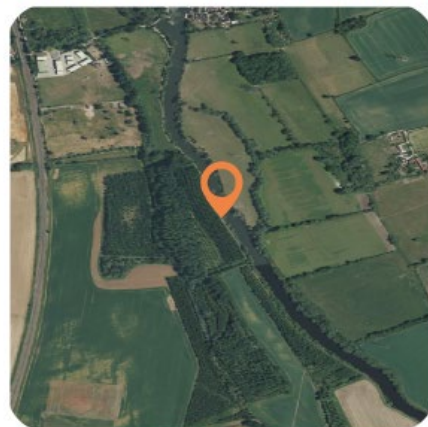


A great find by a recorder in your area

On Friday 01 July someone else's recording near Radley, Oxfordshire, was the highest DECIDE recording priority visit by a recorder in your area. On this visit 1 species was recorded. This species was Large Skipper, *Ochlodes sylvanus*.



Photo (c) Marcello Consolo, some rights reserved (CC BY-NC-SA)



The recording priority map in the DECIDE recorder tool responds to visits to high priority areas such as this visit to near Radley, Oxfordshire. Check out the impact of this record on the DECIDE Recorder Tool.

[Give feedback and visit the DECIDE Recorder Tool](#)

Going the extra mile

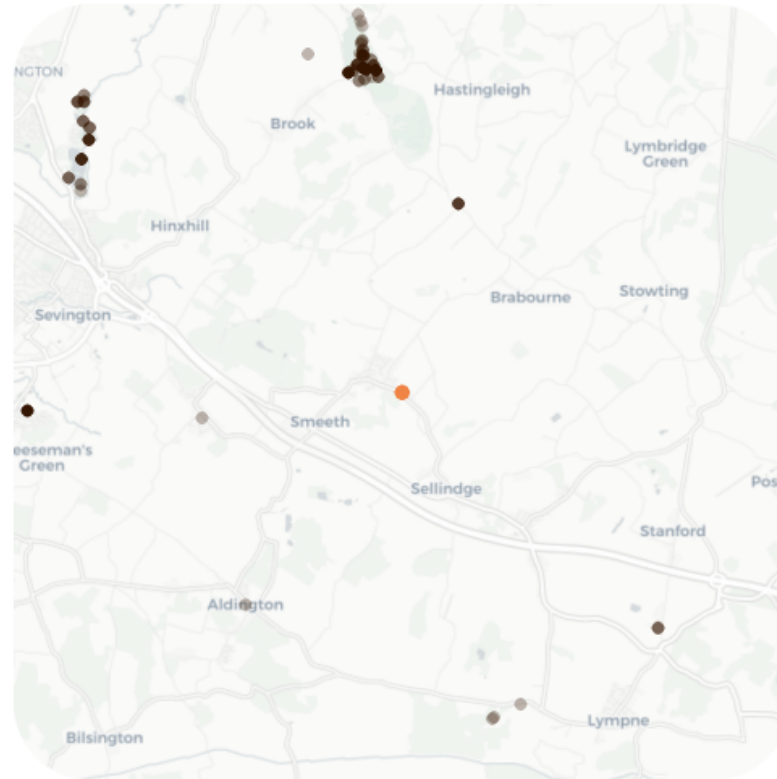
Other recorders have recently recorded 15 species in a location not too far from you near Strumpshaw, Norfolk. Close to that location there are some high recording priority locations which are in need of records. Why not consider going to one of these next time you record?



[Give feedback and visit the DECIDE Recorder Tool](#)

Making a difference together

Wildlife recording is a collective effort and by working together we can better understand species distributions. Take a look at where people have been recording near where you record:



● Your records ● Community records

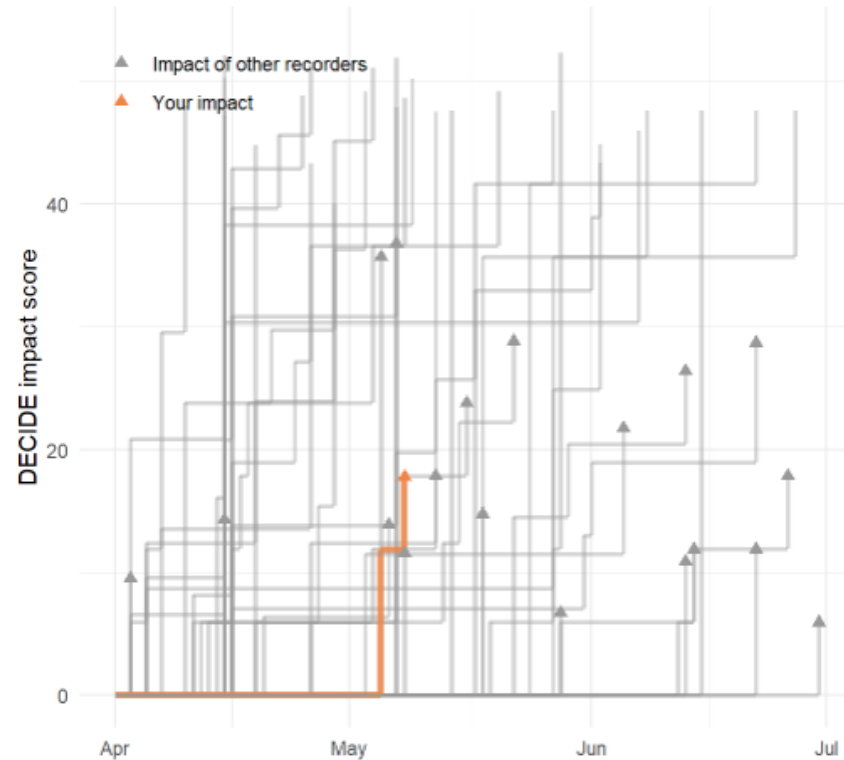
Butterfly records from the past 30 days from the recording community

Contribute to the community effort to improve our understanding of species' distributions by finding high DECIDE priority locations to visit in your area.

[Give feedback and visit the DECIDE Recorder Tool](#)

Who will make the greatest impact?

We've used your records to calculate a "DECIDE impact score". Every visit you make increases your impact score, but higher scores show that you've been recording in places with high recording priority (places that have not been recently recorded and where records are most needed). Take a look at the impact of your records alongside 50 other recorders that have recorded near you.



The MyDECIDE impact score of recorders.

Continue to build your impact by planning a visit near the last place you recorded near Wrackelford, Dorset, and consider going to a place that has a high priority for recording.

[Give feedback and visit the DECIDE Recorder Tool](#)



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DECIDE

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