



# ButterflyCount App

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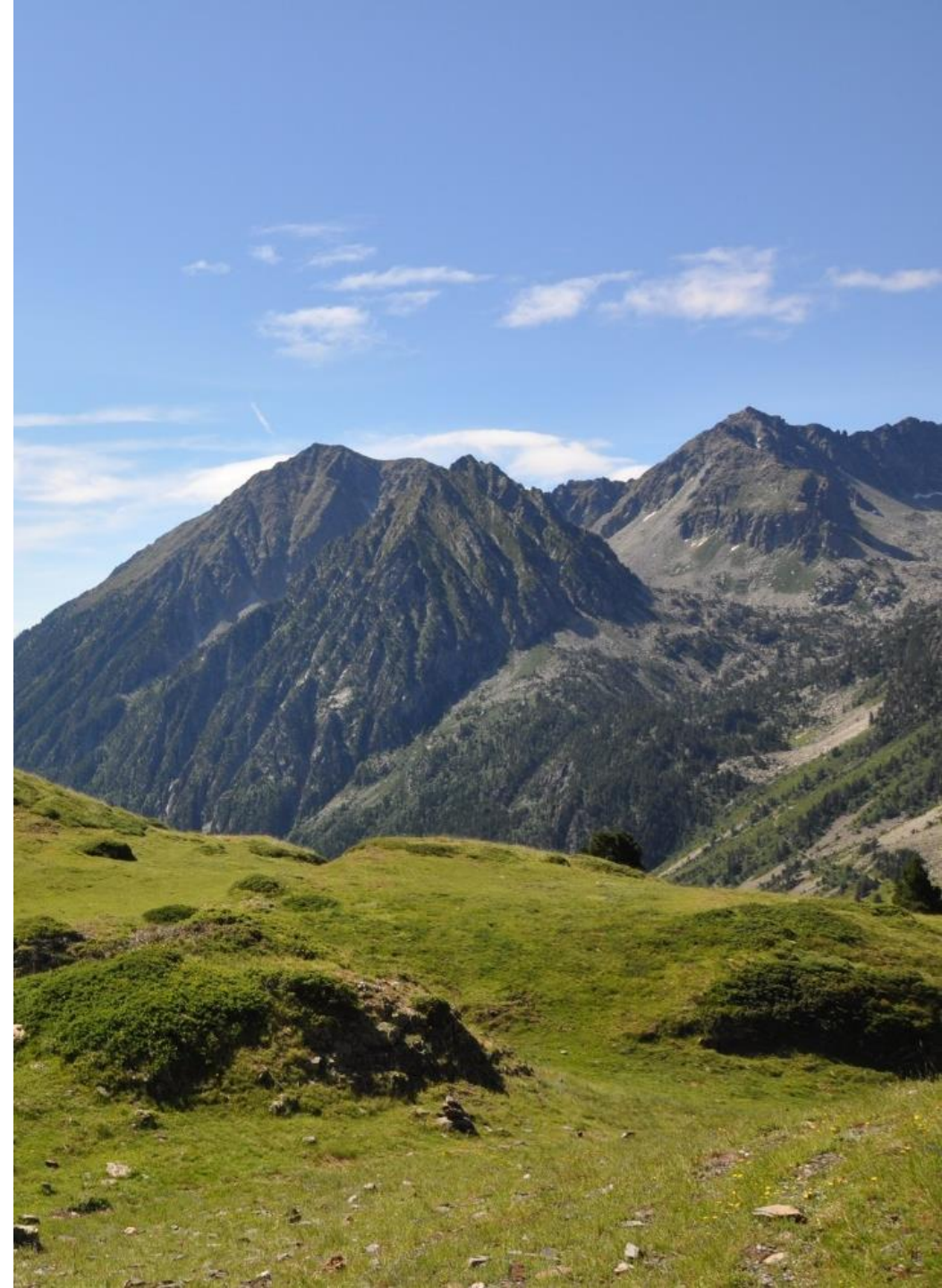
# ButterflyCount app

- Where does the 15 minute count method fit in
- Current functionality of the ButterflyCount app
- Future options



# Some of the main ways we monitor butterflies

- Opportunistic sightings (atlas recording)
- Butterfly transects
- Point counts
- Timed area counts
- Capture-mark-recapture
- + new technologies (molecular, automated cameras)





# Opportunistic sightings

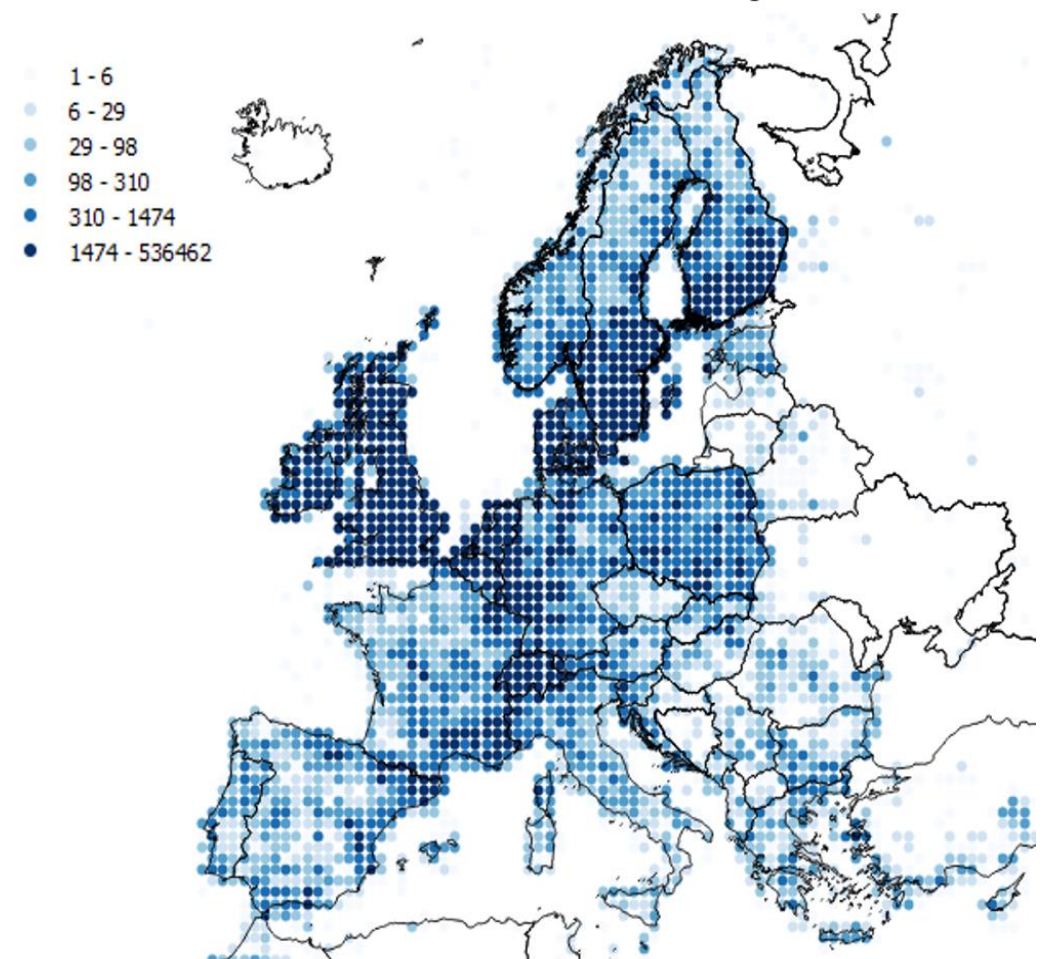
‘Easy’ to do: almost no rules and conditions

Can involve citizen science (e.g. photographers)

A mix of single-sightings and complete lists

Good for mapping, lots of science applications

Can be used for trends in distribution (e.g. Red Listing), but much less sensitive than count data



Map of ‘accessible’ records, from GBIF, iNaturalist and Observation.org (produced by Chris van Swaay)



# Butterfly Transects (gold standard?)

‘Easy’ to do: suitable weather

Standardised: regular  
commitment, fixed route

Complete lists

Involves expert citizen science

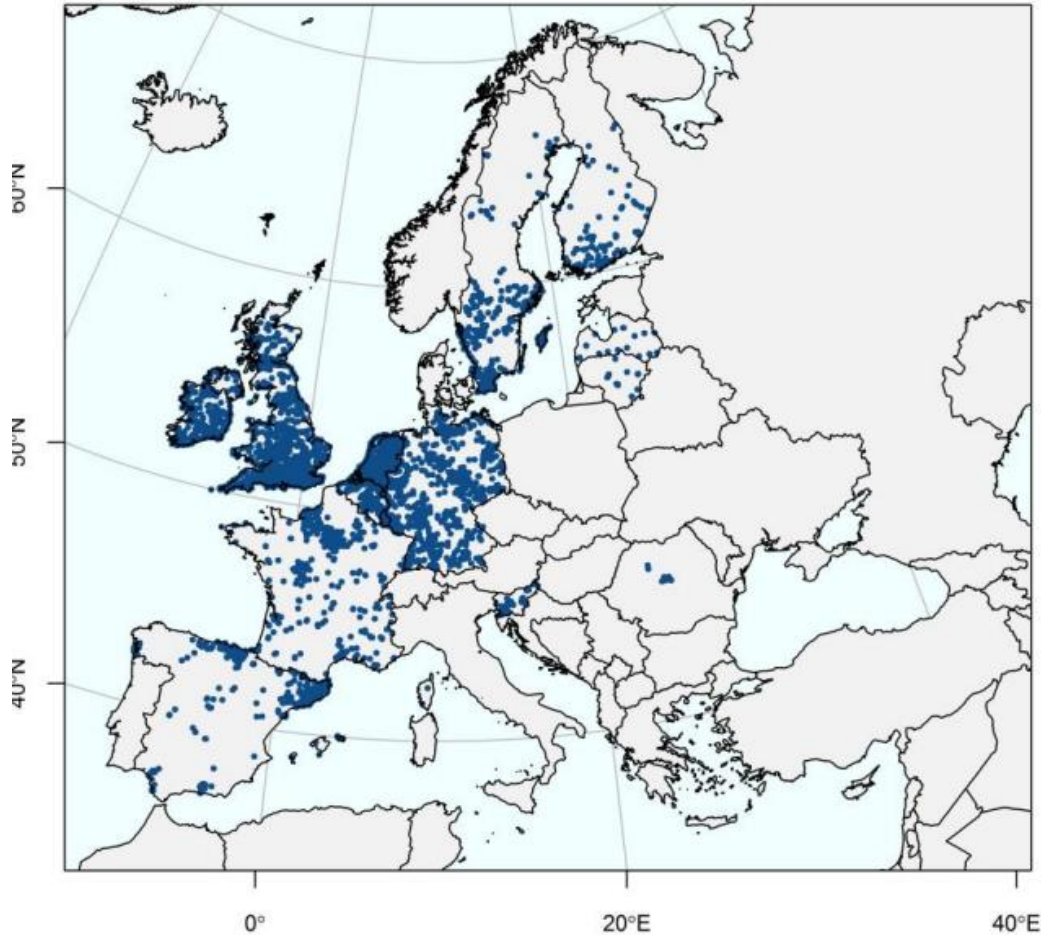
Established analysis methods

Strong results: Annual indices of  
relative abundance

Very sensitive measure of  
change, including at sites

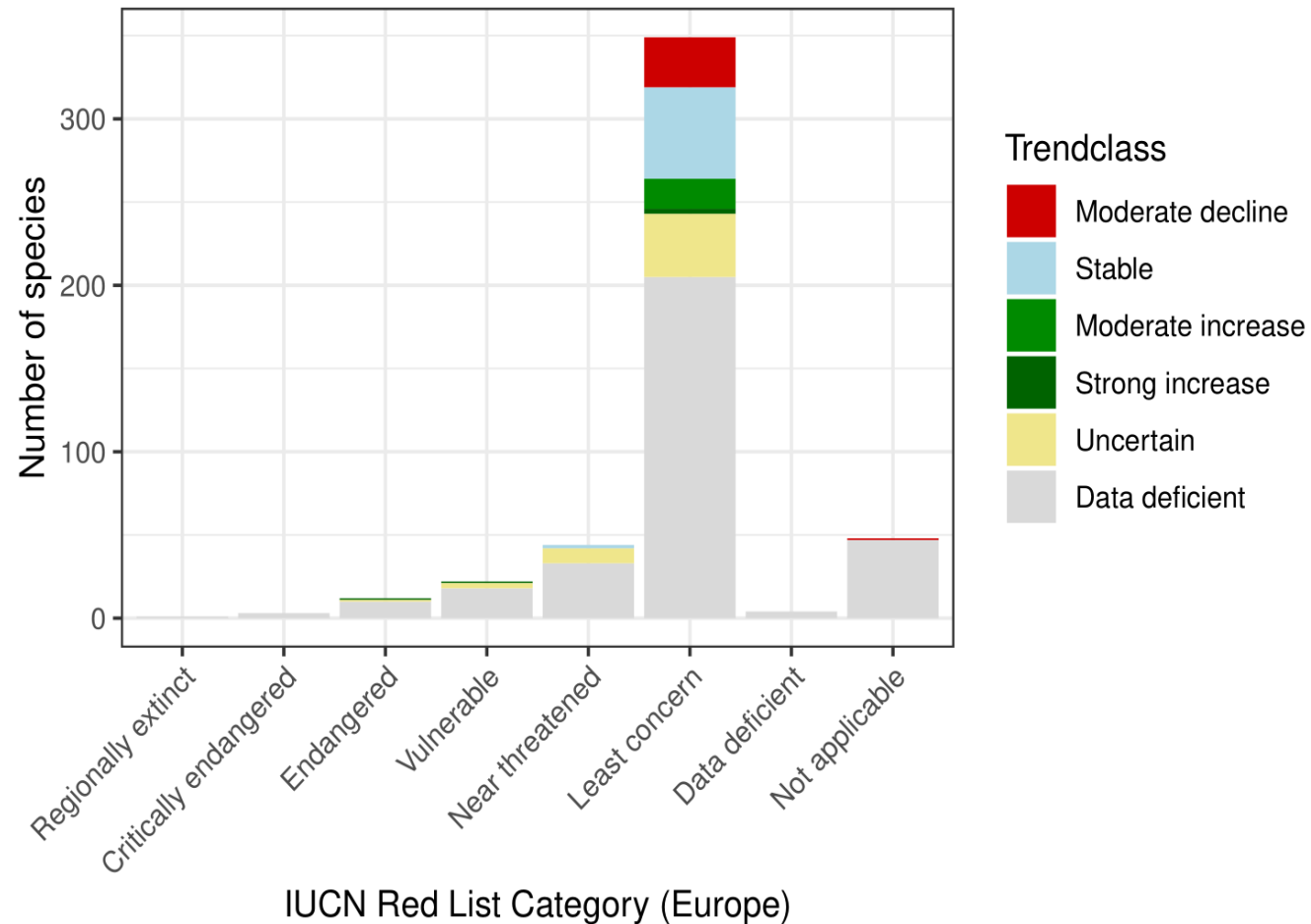


# Our European trends and indicators from BMS are heavily biased



Transects used for last published Grassland Butterfly indicator

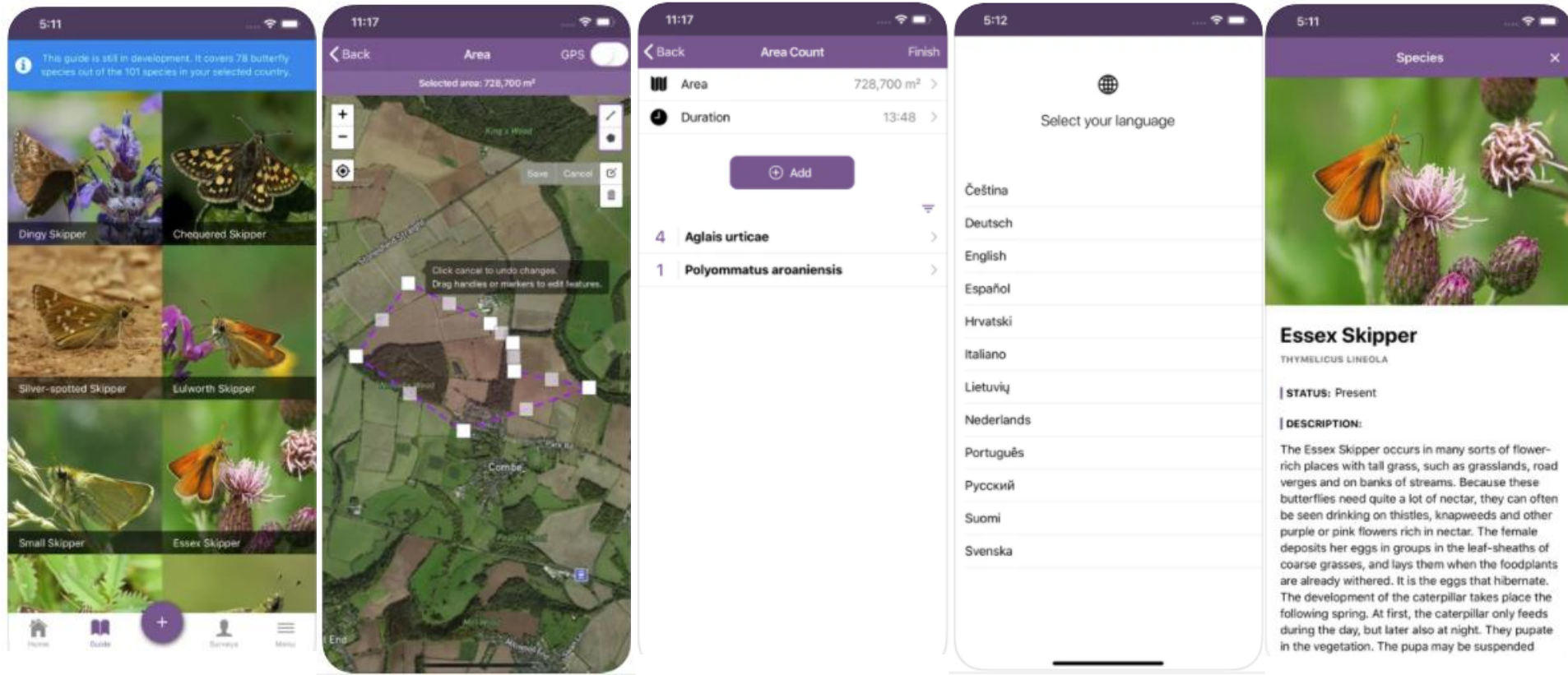
BMS Trends: for only 167 species (out of 496), biased toward common and widespread species





# ButterflyCount mobile application – part of the solution

- Smart use of technology to lower the barriers to collection of count data with a measure of sampling effort
- Potential to fill gaps in under-represented areas (e.g. urban/farmland and remote areas) and under-sampled species (rare species)

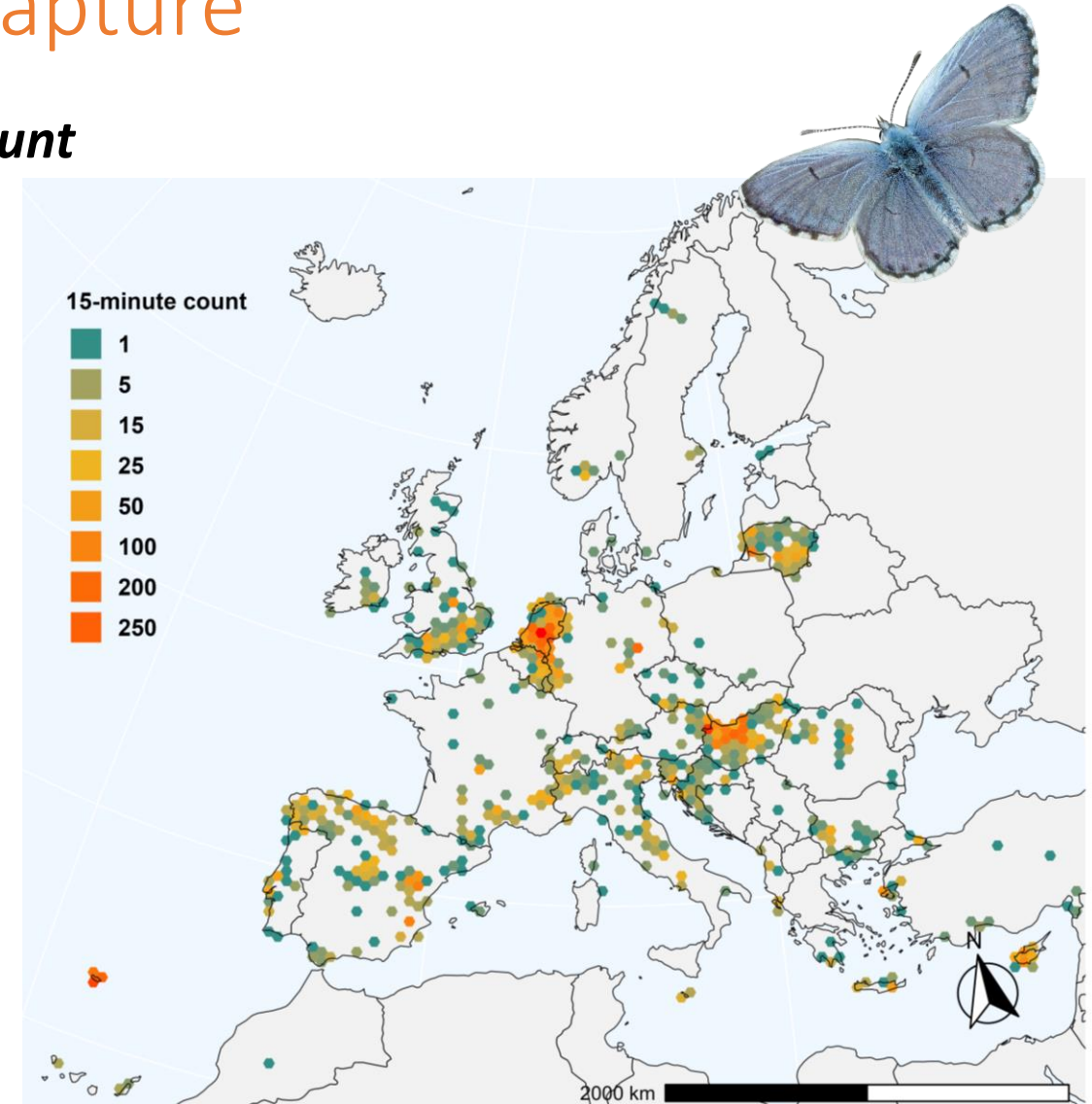
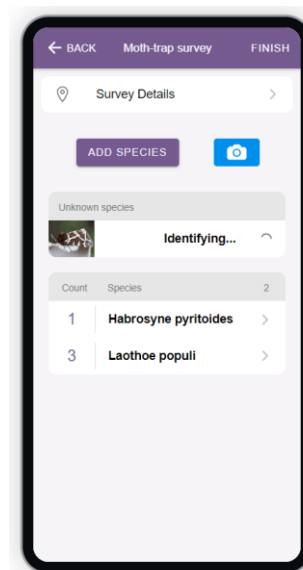


# Online tools to support data capture

## ***ButterflyCount app: (2021 - 2022) 15-minute count***

- ▶ 470 volunteers = high frequency of data
- ▶ 9,854 recording events (15 minutes)
- ▶ ca. 2,500 hours of monitoring
- ▶ 234 registered butterfly species
- ▶ + dragonflies, bumblebees, moths

top recorders	nbr records
1. Szabadfalvi, Andras	28,794
2. Ambrus, Andras	20,731
3. van Swaay, Chris	14,750



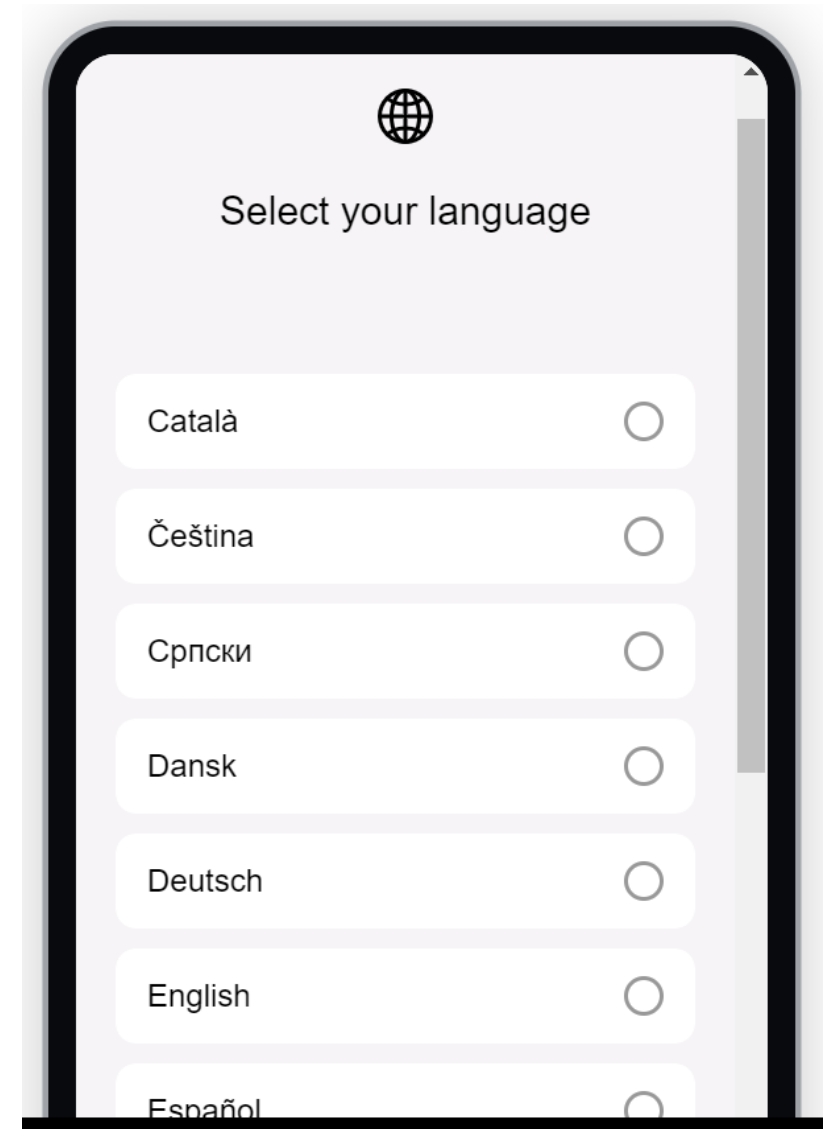
eBMS data updated 2020

(data update - September 2022)

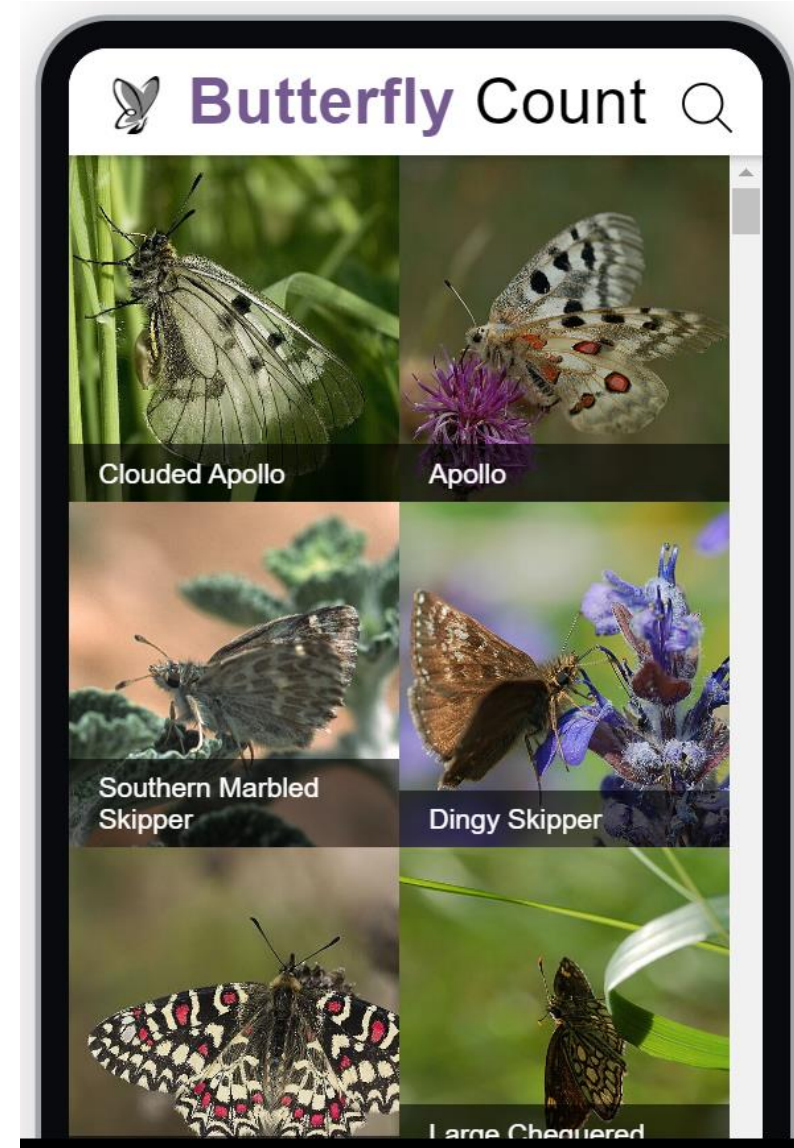
Density of 15-minute counts per 50x50 Km



# Multi-lingual support



# Species Guide



# Species lists

Group	Number of taxa
Bumblebees	90
Butterflies	1160
Dragonflies	134
Moths	10590

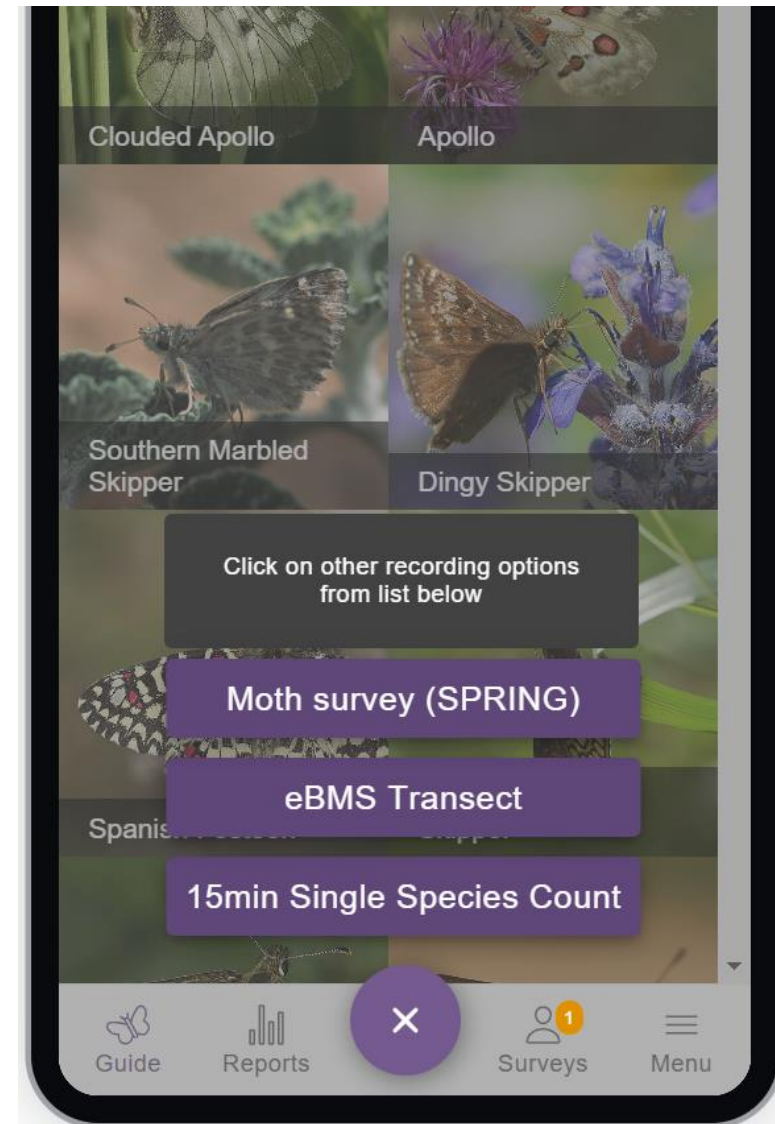


# Languages

Language	Count
Latin	14642
Dutch	2948
German	2258
English	977
Japanese	294
Czech	224
Bulgarian	216
Catalan	207
Croatian	198
Swedish	188
Slovenian	163
Hungarian	160
Polish	148
Lithuanian	126
Russian	124
Finnish	121
Danish	71

# Four survey types:

- > 15m count
- > 15m single-species count
- > Transects
- > Moths




# Moth survey: trap setup


← BACK

Moth Trap

SAVE

 Location

ST 4 8  
teststtestetsesta  
et >

 Type

LED funnel trap >

ADD LAMP

Lamps

1

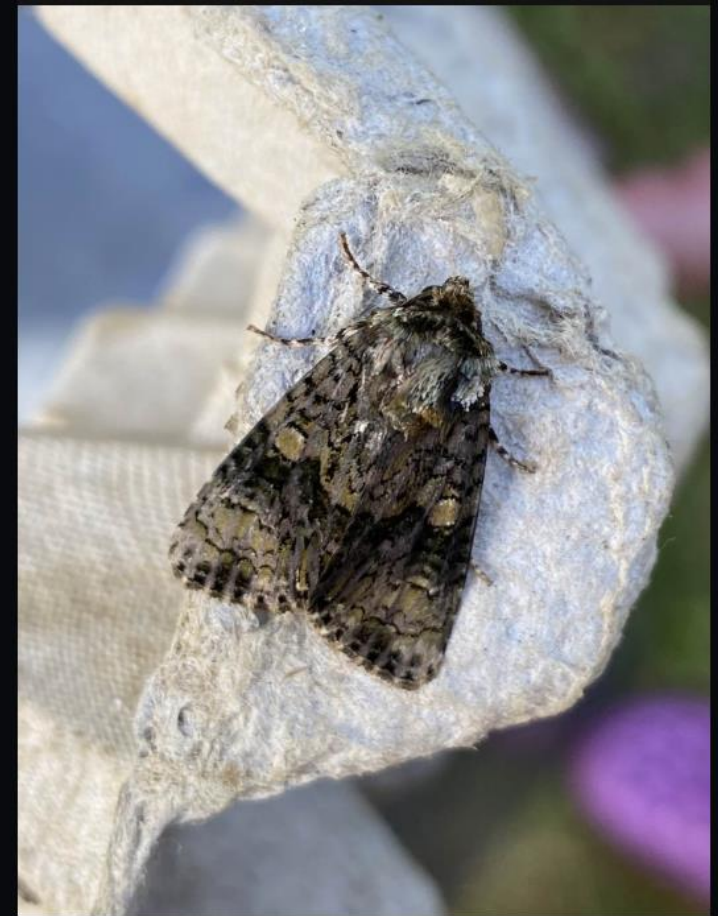
E27 → Mercury vapour - ML →  
250W

>

Quantity: 1



Moth survey:  
AI to support image  
classification via  
Naturalis  
(obsIdentify)



We think it is 100% likely a *Craniophora ligustri* species.

Four survey types:

- > 15m count
- > 15m single-species count
- > Transects
- > Moths



# Website to support the app

**eBMS website:** [butterfly-monitoring.net](https://butterfly-monitoring.net)

- Downloads
- Co-ordinator role
- Data verification system

## BMS transect downloads

Download species occurrences from transects (zipped CSV)

Download sample (visit) information from transects (zipped CSV)

Download site details

Download transect sections

## 15 minute timed-count downloads

Download timed-count occurrences

Download timed-count sample data

Download single-species timed-count occurrences

Download tracks and areas (KML)

Download tracks and areas (GPX)

## Moth trap downloads

Download moth trap occurrences

Download moth trap samples



# What next?

Migrant survey (painted lady)



Expanded species guide



Image classification for butterflies



Personal feedback within the app/website



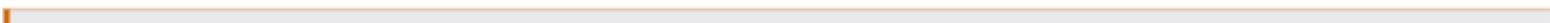
Data verification system



Automatic export to GBIF



Other (come and discuss with me)



## Ready to track the next invasion in real-time

- ## THE INCREDIBLE MIGRATION OF THE
- # PAINTED LADY
- The painted lady, *Vanessa cardui*, is an almost cosmopolitan species of butterfly. It completes a journey of more than 10,000 km between Africa and Europe every year, through a succession of generations, looking for optimal breeding conditions at any moment.
- ### LIFE CYCLE
- The complete cycle, which consists of egg, larval, pupal and adult stages, takes 3-5 months and takes place, without interruption, 6-8 times over the year. Adults live for 3-4 weeks.
- 
- ### JUNE
- #### Great Britain, Dorset
- The generation that are born in the Mediterranean region migrate to northern Europe in early summer. After their long journey, butterflies feed avidly on the nectar of flowers to recharge themselves.
- 
- ### APRIL/MAY
- #### Catalonia, Barcelona
- Migratory painted ladies mate as soon as they reach their destination areas, with males establishing their territories on mountain ridges and hill tops.
- 
- ### APRIL/MAY
- #### Morocco, Ile de l'Aire
- Painted ladies fly hundreds of miles and have to overcome major obstacles during their migration. They fly over the Mediterranean Sea to Europe in the spring.
- 
- ### APRIL
- #### Morocco, Settat
- The Maghreb provides the main emergency area for painted ladies in the western Palearctic during the spring, thanks to its high density of thistles and meadows.
- 
- 
- 
- ### JULY
- #### Sweden, Arctic tundra
- Painted ladies may reach the extremes of their migratory circuit, such as northern Scandinavia, when environmental conditions so permit.
- 
- ### AUGUST-SEPTEMBER
- #### Baltic, Gulf of Finland
- At the end of the summer, the generation that are born in northern Europe travel to the Maghreb and the Sahel, taking advantage of high altitude tallows.
- 
- ### OCTOBER
- #### Morocco, Zagora
- Huge numbers concentrate in the oases of the Maghreb during the autumn, where they can find nectar sources and host plants where to lay their eggs on.
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- ### NATURAL ENEMIES
- Painted ladies have numerous predators that take advantage of them as a temporary and occasionally abundant resource: birds, such as the bee-eater and the sparrowhawk, and even frogs. In the Maghreb, many painted ladies are also killed at the caterpillar stage, when persecuted by the Colletes venosus wasp.
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- ### DECEMBER
- #### Subtropical Africa
- During the winter, most of the population is concentrated in subtropical Africa, from where it recolonises the Maghreb each year and starts its annual progression to the north.
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- Ministry of the Environment  
Ministry of Agriculture  
Ministry of the Sea  
Ministry of the Interior  
Ministry of the Economy  
Ministry of the Culture  
Ministry of the Education  
Ministry of the Health  
Ministry of the Justice  
Ministry of the Labour  
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Ministry of the Religion

# What next?

[www.menti.com](https://www.menti.com) [code: 5662 9188]

Migrant survey (painted lady)

Expanded species guide

Image classification for butterflies

Personal feedback within the app/website

Data verification system

Automatic export to GBIF

Other (come and discuss with me)



# Thank you

BMS Coordinators  
EBMS partners  
Volunteers



The EU and MEPs for funding and  
support for ABLE and SPRING



<https://butterfly-monitoring.net/>