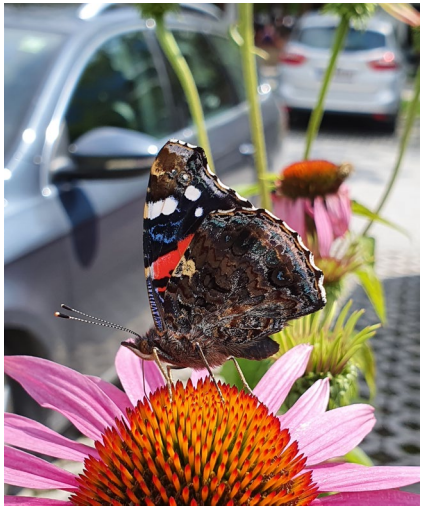
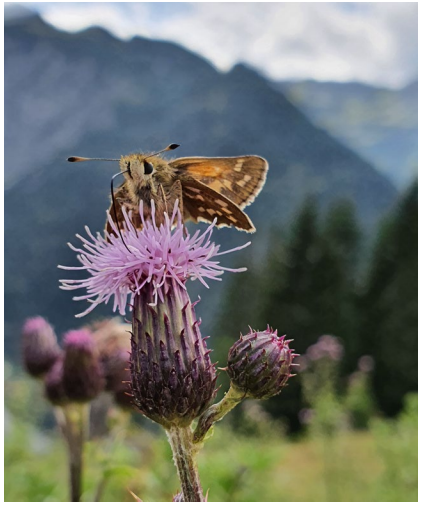
Counting butterflies in urban and agricultural areas: experience and lessons using the ButterflyCount app

Guy Pe'er

BCE partner meeting, Laufen, 3.12.2025





„**Agriculture and Ecosystems**" group lead
Dept Biodiversity and People
UFZ – Helmholtz Centre for Environmental Research
iDiv – German Centre for integrative biodiversity research

Policycontext

- **Biodiversity Strategy for 2030**
- **Nature Restoration Regulation**
- **CAP reform**

Challenge: higher data resolution to inform decisions on specific measures and instruments ➔ expansion needed!


PERSPECTIVE

PEOPLE NATURE

Action needed for the EU Common Agricultural Policy to address sustainability challenges

Pe'er et al. 2020


PERSPECTIVE

Conservation Letters

WILEY

How can the European Common Agricultural Policy help halt biodiversity loss? Recommendations by over 300 experts

Pe'er et al. 2022


POLICY FORUM

Hering et al. 2023

BIODIVERSITY

Securing success for the Nature Restoration Law

The EU law would complement many others, but challenges loom


Received: 11 July 2023 | Accepted: 11 April 2025

DOI: 10.1002/pan3.70064

People and Nature

PERSPECTIVE

Role of science and scientists in public environmental policy debates: The case of EU agrochemical and Nature Restoration Regulations

Pe'er et al. 2025

15-minute protocol

… may **complement transects** for higher data density and resolution:

- Specific location and measure
- Small habitats
- Localized behaviour (e.g. when taking a break or working in garden)
- Rare species’ sites
- Beginners
- Deserts, tropical forests, …
- …

Clarification:
- Repeated visits in
- Registered sites

(= **systematic monitoring)**

The protocol (urban)

Inspired by the French Garden Biodiversity Observatory

- Find your favourite place
- Download the app
- Register the site
- Count and identify all butterflies *(try to avoid duplicates. If unsure, count **max** seen)*
- Come and count again

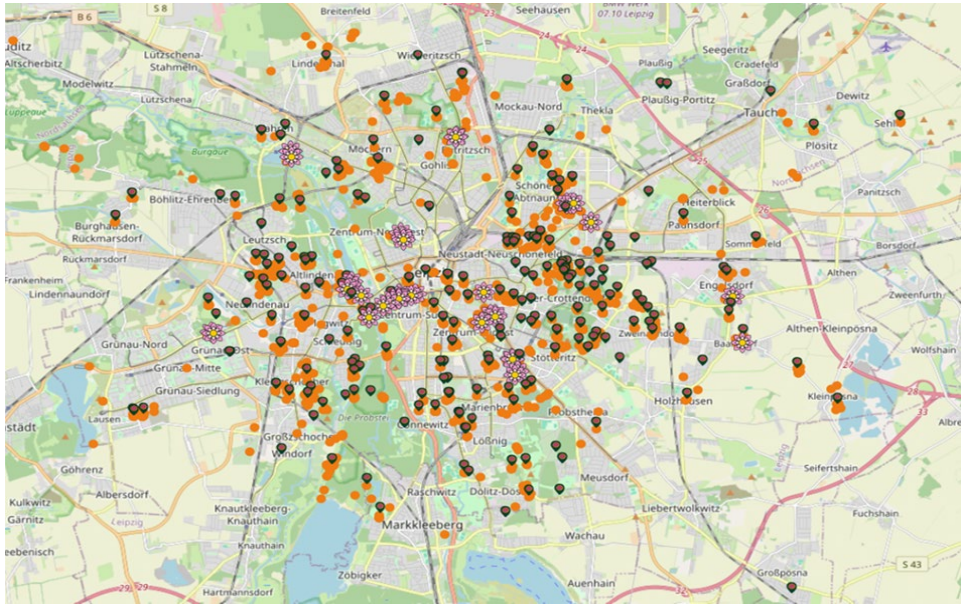
(optimally: every 2 weeks, April-September)

Minimum needed for an active site: **3 visits**

(Optimum site size: 500m^2)

VielFalterGarten: Butterflies in Leipzig

	2020	2024
Participants	19	810
Sites	17	305
15-Min counts	41	1263
Butterflies	116	11,027



Funding 2020-2024

Bundesministerium für Umwelt, Naturschutz, nukleare Sicherheit und Verbraucherschutz

aufgrund eines Beschlusses des Deutschen Bundestages

Bundesamt für Naturschutz

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das Bundesprogramm

BUND FRIENDS OF THE EARTH GERMANY

Stadt Leipzig
Amt für Stadtgrün und Gewässer

UFZ

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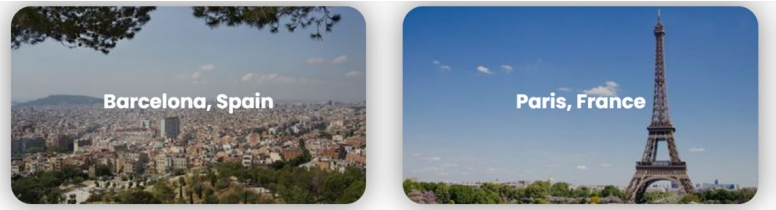
Project UNPplus (2024-6)

Improving urban nature plans to integrate biodiversity into society

Our aims:

Retain VielFalterGarten
Expand to, and learn from, other cities (task 5.3)
Require a) the Butterfly Count app and b) your experience and knowledge



- **Leipzig**
- Berlin (2024)
- **Mannheim** (2024)
- **Belgrade** (2025)
- (Barcelona)
- (Burgas)
- Lage (2025)
- Munich (2025)
- **Vienna**
- **…**

Stadt Leipzig
Funding BUND 2025

Co-funded by
the European Union

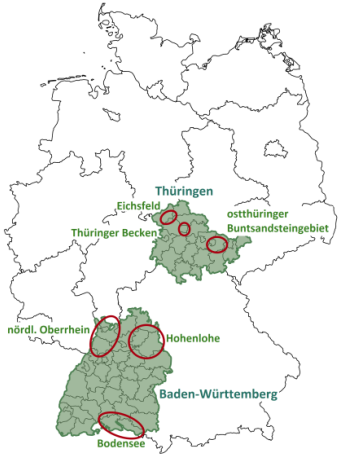
CAP4GI
GAP für vielfältige Landschaften

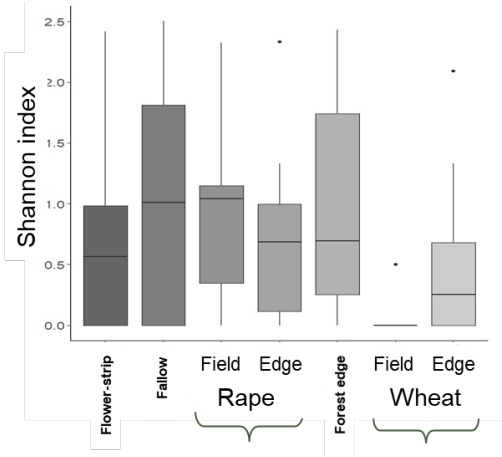
Agricultural areas

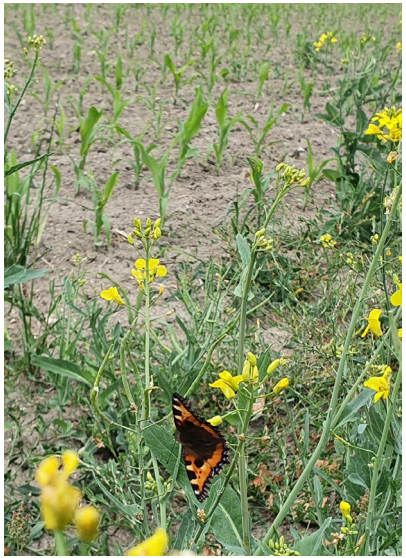
The challenge: 50% of European terrestrial area

CAP4GI project:

2022 MSc Lea Kahoun: **52 sites**
2023 paid volunteers in **5 landscapes** (ca. 80 sites)







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Agricultural areas

The challenge: 50% of European terrestrial area

CAP4GI project:

2022 MSc Lea Kahoun: **52 sites**
2023 paid volunteers in **5 landscapes** (ca. 80 sites)

Agroecology-TRANSECT:

2024 prepare **protocol and app**
2025 improve **app**

Recruitment campaign & data collection in selected countries
Bulgaria, Hungary, Germany, France, Slovenia

CAP4GI
GAP für vielfältige Landschaften

The agricultural protocol

agroecology transect

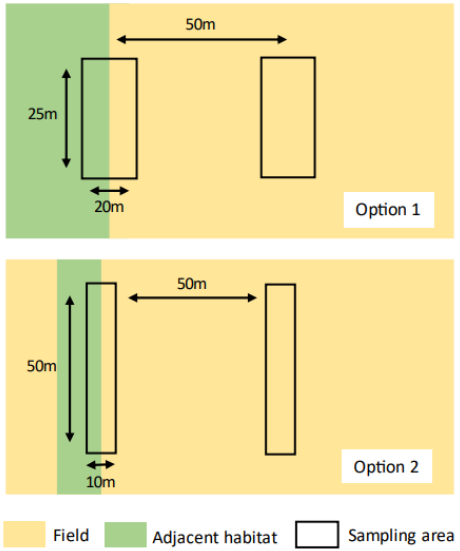
- Choose a field
- Choose one or **two sampling sites: border** vs. **in field**
- Site size: 25×20 / 50×10 / 100×5 m = **500m²**

- Register the site(s)
- Count and identify all butterflies (try to avoid duplicates)
- Come and count again

(optimally: every 2 weeks, April-September)

Minimum needed: 3 visits from mid-June to Mid-August

Additional: data-loggers for **soil temperature and moisture**



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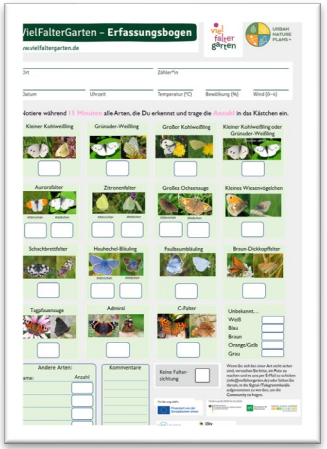
‘Results’

2024: 8 sites registered and sampled (Bulgaria, Hungary, France, Germany, Ireland)

2025: 13 participants, circa **85 sites**

Current status:

- Some data still missing (Slovenia, France)
- Struggling to download site data
- Validation needed by BMS coordinators
- Harvesting of lessons
- Many comments from Butterfly Count users



Harvesting lessons, problems, solutions and aspirations

1. Project assignment

Aims:
- Find and manage the data
- Separate beginners from experienced observers
- Ease validation
- Ease analyses (e.g. urban versus rural)

Problem: not all people assign observation into projects
Aspiration: ease (semi-)**automatic validation** based on season, distribution, commonness, ease of recognition

Task and challenges: localized species‘ lists (and metadata)

Harvesting lessons, problems, solutions and aspirations

2. Site registration

Aims:
- Collect more information regarding site characteristics and management
- Map observations more readily
- Ease data analyses (e.g. based on data types)

Problems:
- App not easy to operate
- Not all people assign observations into registered sites
- Once registering, cannot find the site again
- Data downloads not yet fully operational

Tasks and challenges:
- easier site registration
- Register and assign sites online
- …

Harvesting lessons, problems, solutions and aspirations

Deliverable / paper in prep:
Roadmap for expanding farmland monitoring

3. Different protocols, observer types and behaviours

a. Stay on the spot, explore an area, or walk a transect?

- *issue: repeated counting of the same individuals. Solution: report max when needed)*

b. How much do we want to prescribe?

- survey area?
- 15-minutes? *(what happens if I stop at 8?)*
- What do 15 minutes mean? „searching“ time? (remove identification time or photography)

c. Report every individual on the spot and then identify?

- When working with data sheets; or when too many unidentified individuals ➔ **observe, then report**
- (**task**: allow edit observations after count-end – but still assign to location?)

Good news: app can help resolve many of these issues

Still: please can we streamline the protocol(s) for 15-minute counts?

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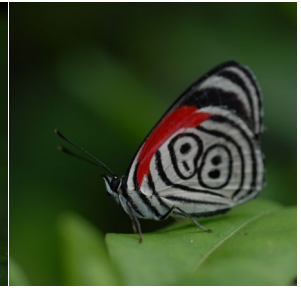
Further aspiration: Butterfly Conservation International

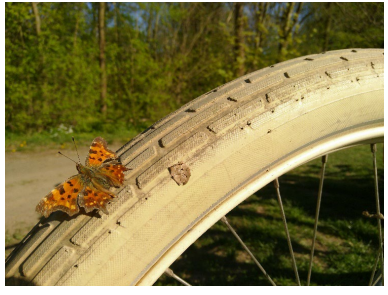
Empowering people with data

Guy Pe'er, Shawan Chowdhary, Cristina Sevilleja, David Roy, Onildo Marini, Lynn Katsolis, Maxim Larrivee, Kevin Gauthier, Steve Collins, …

Objectives: To

- **Expand monitoring efforts** , especially where these are most urgently needed
- **Boost capacity building** and **mutual learning**
- **Empower experts and citizens** to communicate the needs of butterflies, nature and people
- **promote nature protection** and restoration, and sustainable land use



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Further aspiration: Butterfly Conservation International

Empowering people with data

Guy Pe'er, Shawan Chowdhary, Cristina Sevilleja, David Roy, Onildo Marini, Lynn Katsolis, Maxim Larrivee, Kevin Gauthier, Steve Collins, …

Potential key activities

- Establishing and capacity building of Butterfly Monitoring Schemes
- Learning and education
- **Fundraising**
- Fostering butterfly research
- Coordinated conservation efforts and science-policy interfacing

Next steps:

- Consult on business models
- Register and go for it.

We are only just starting: Much to learn from BCE!

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To summarize

- Huge potential for expansion – but also huge challenges in agriculture
- 15-min may complement transects
- Integration of approaches, people & schemes may differ between countries
- We may want to experiment on expansion approachs to maximise impacts

Welcoming your reflections , comments , ideas, proposals

Acknowledgements to the many **volunteers**, project partners, **eBMS team,** **BMS coordinators**
Especially David, Cristina, John, Karolis, Milos, Zdravko

viel falter garten

Bundesministerium für Umwelt, Naturschutz, nukleare Sicherheit und Verbraucherschutz

aufgrund eines Beschlusses des Deutschen Bundestages

Bundesamt für Naturschutz

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URBAN NATURE PLANS +

Co-funded by the European Union

CAP4GI
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GEFÖRDERT VOM
Bundesministerium für Bildung und Forschung

FONA
Sozial-ökologische Forschung

agroecology transect

Co-funded by the European Union

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Maud Bernard-Verdier, Stefanie Henkel, Yaku Feick, Friedrich Flämig, Swantje, Nina Stratil

CAP4GI
Lea Kahoun, Daniel Vedder, Sarah Velten

Agroecology-TRANSECT
Lizzie Finch, Clelia Sirami, Yanka Kazakova, Tim Dickens, …

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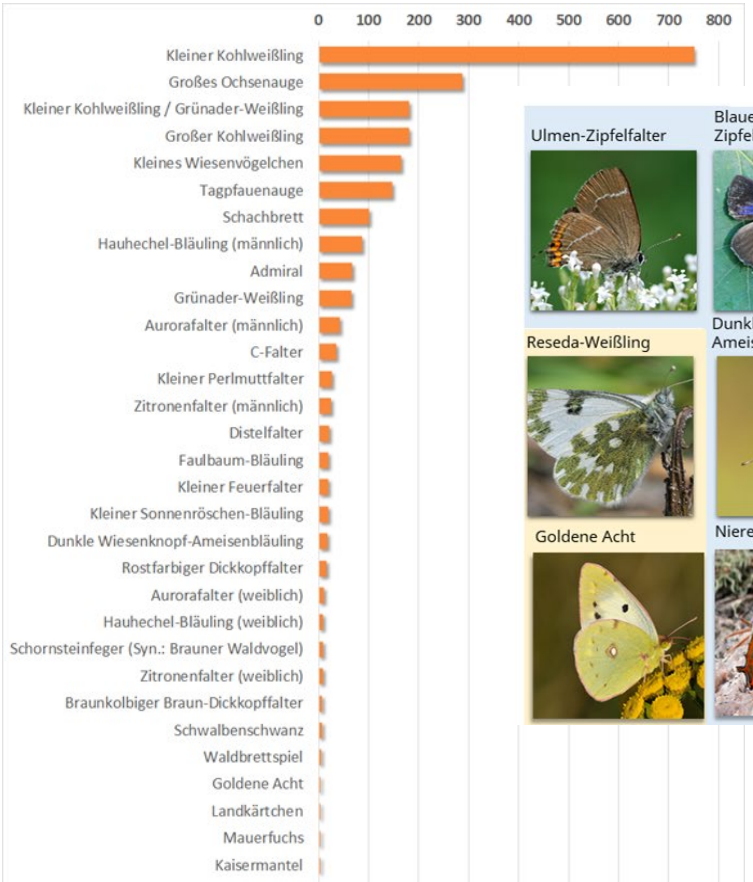
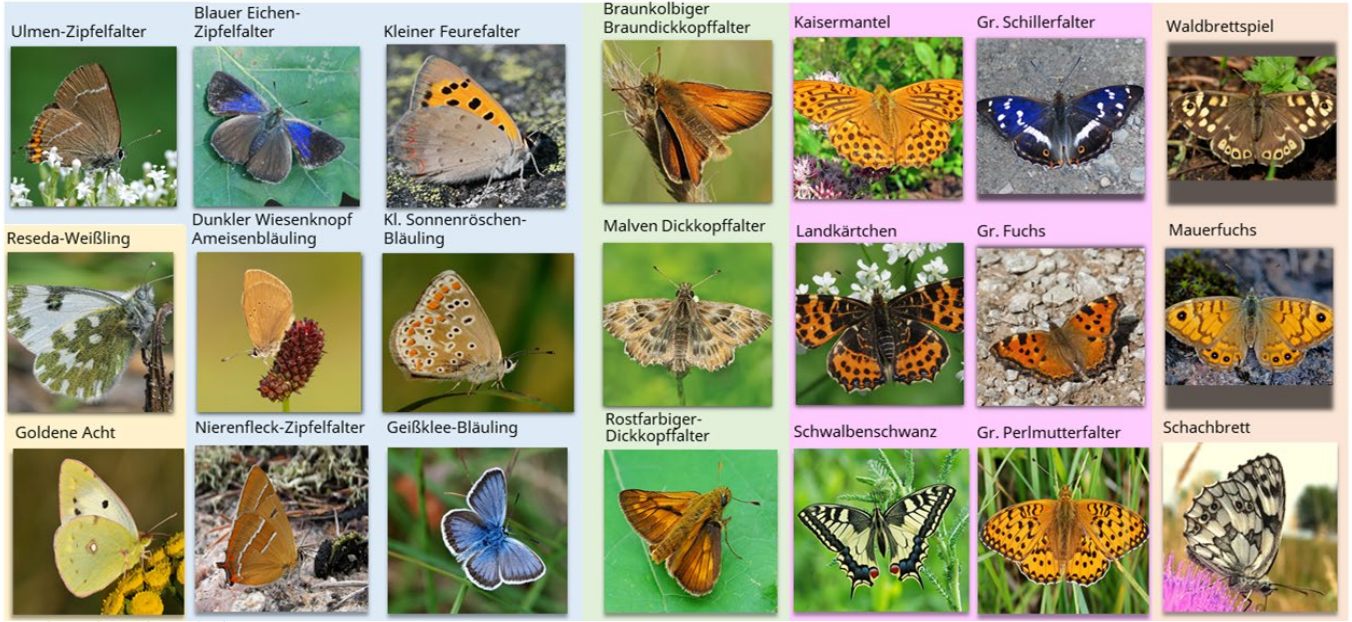
44 species counted by volunteers





Results

agroecology transect

Country	Year	# sites (total visits)	# people	# butterflies (total abundance)	# species
Germany	**2022**	**52 (120)**	1	977	32
Germany	**2025**	**6 (17)**	2	63	12
Bulgaria	**2025**	**14 (42 visits)**	1	819	27
Hungary	**2024**	**11 (11 visits)**	1	23	11
Hungary	**2025**	**9 (24 visits)**	1	317	39

Pictures: Yanka Kazakova

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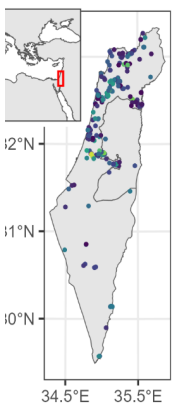
About myself(wrt butterflies)

- **Israeli BMS** (BMS-IL co-founder, 2009)
- **LOLA -BMS** project (toward eBMS, 2012-2016)
- **VielFalterGarten** project, Leipzig, Germany (since 2020)
- Urban monitoring expansion in **UNPplus** (2024-2026)
- Agricultural monitoring in **CAP4GI** and **Agroecology -TRANSECT**
- Trying to help establish **global** butterfly monitoring and conservation



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