Fondation Jean-François & Marie-Laure de Clermont-Tonnerre

Chaire annuelle Biodiversité et écosystèmes

Solutions to monitor plants, pollinators and their interactions in a changing world

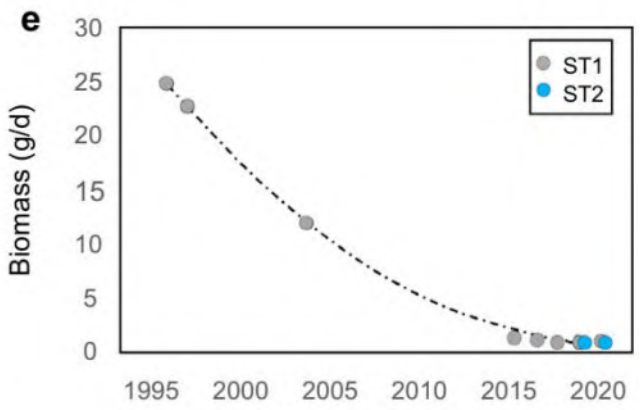
Symposium – May 23rd, 2024

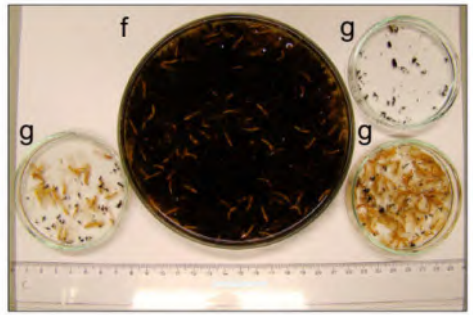
Picture – Didier 51 - SPIPoll

Plants and pollinators are changing rapidly

- Plants
  - Homogenisation
  - Changes in community composition

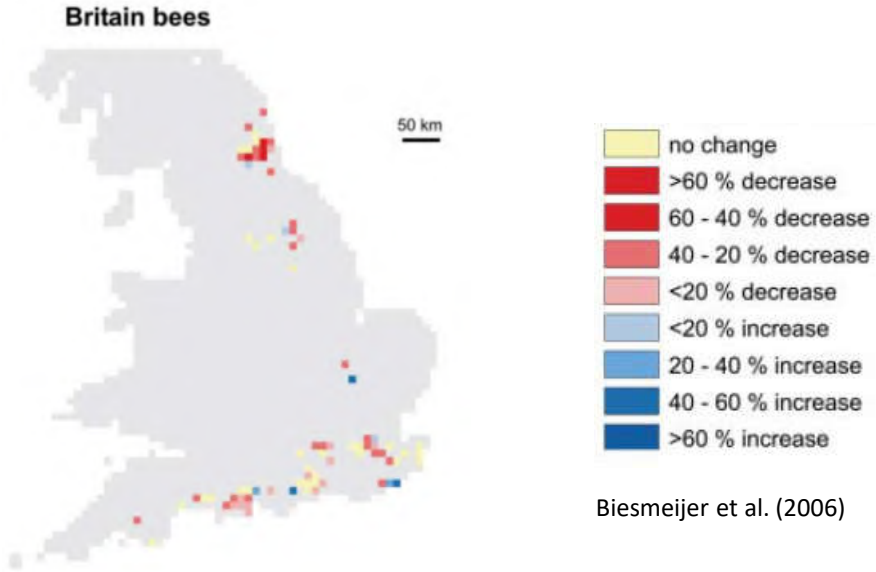
- Pollinators
  - Collapse in insect biomass





Ziesche et & al 2023

- Interactions: parallel local extinctions

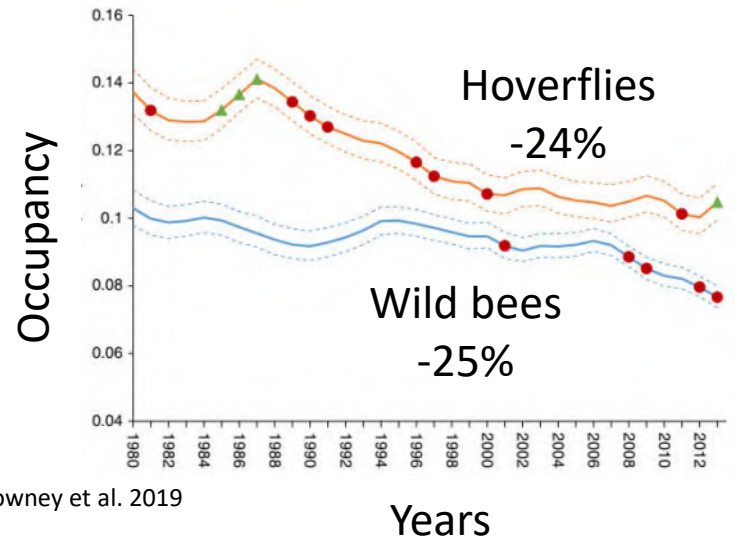


Biesmeijer et al. (2006)

- **But still incompletely documented and understood**
  - Need for long time series

Different options to study temporal trends

- Opportunistic (occurrence) data



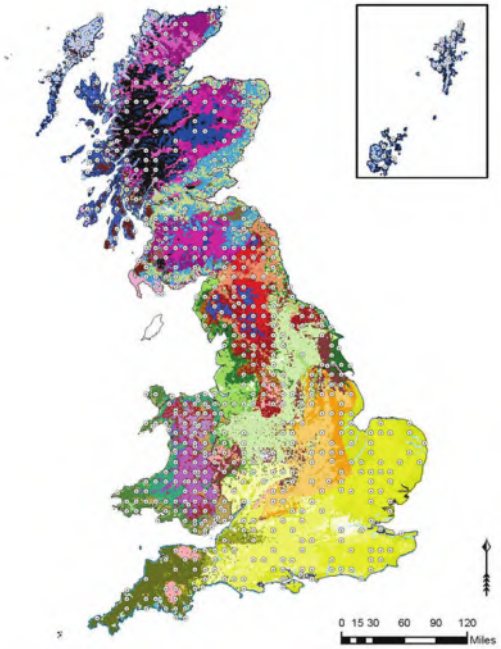
Powney et al. 2019

- Large datasets
  Good temporal coverage
- Biased data

- Re-survey of fixed sites

- No temporal bias
- Spatial bias may remain

- Structured monitoring



British countryside survey

- Representative sampling
  Limited bias
- Fewer data?

Existing schemes presented today

United Kingdom

National Plant Monitoring Scheme

O. Pescott

France

vigie-flore

G. Martin

Spain

(Catalunya)

M.B. García

Denmark

NOVANA

B. Ehlers & C. Damgaard

Germany

sMon

U. Jandt

Switzerland

J. Frei & T. Roth

Schemes with a broader scope

ForestREplot (Europe and North-America)

D. Waller

P. de Frenne

Species turnover reveals hidden effects of decreasing nitrogen deposition in mountain hay meadows

Tobias Roth[1,2], Lukas Kohli[2], Christoph Bühler[2], Beat Rihm[3], Reto Giulio Meuli[4], Reto Meier[5] and Valentin Amrhein[1]

The design, launch and assessment of a new volunteer-based plant monitoring scheme for the United Kingdom

Oliver L. Pescott[1]*, Kevin J. Walker[2], Felicity Harris[3], Hayley New[3], Christine M. Cheffings[4], Niki Newton[4], Mark

More losses than gains during one century of plant biodiversity change in Germany

Ute Jandt[1,2,40], Helge Bruelheide[1,2,40], Florian Jansen[3], Aletta Bonn[2,4,5], Volker Grescho[2,4], Reinhard A. Klenke[1,2], Francesco Maria Sabatini[1,2,6], Markus Bernhardt-Römermann[2,7], Volker Blüml[8], Jürgen Dengler[2,9,10], Martin Diekmann[11], Inken Doerfler[12], Ute Döring[13], Stefan Dullinger[14], Sylvia Haider[1,2], Thilo Heinken[15], Peter Horchler[16], Gisbert Kuhn[17], Martin Lindner[2,18], Katrin Metze[19], Norbert Müller[20], Tobias Naaf[21], Cord Peppler-Lisbach[22], Peter Poschlod[23], Christiane Roscher[2,24], Gert Rosenthal[25], Sabine B. Rumpf[14,26,27], Wolfgang Schmidt[28], Joachim Schrautzer[29], Angelika Schwabe[30], Peter Schwartze[31],

Community ecology

Ongoing decline in insect-pollinated plants across Danish grasslands

Global Ecology and Biogeography, (Global Ecol. Biogeogr.) (2004) 13, 97–104

Bo

ECOLOGICAL SOUNDING

Scale and trends in species richness: considerations for monitoring biological diversity for political purposes

Darius Weber*, Urs Hintermann and Adrian Zangger

PROCEEDINGS OF THE ROYAL SOCIETY B

Proc. R. Soc. B (2006) **273**, 2659–2665
doi:10.1098/rspb.2006.3630
Published online 18 July 2006

Declining potential nectar production of the herb layer in temperate forests under global change

Wim De Schuyter[1] | Emiel De Lombaerde[1] | Leen Depauw[1] | Pallieter De Smedt[1] | Alina Stachurska-Swakoń[2] | Anna Orczewska[3] | Balázs Teleki[4] | Bogdan Jaroszewicz[5] | Déborah Closset[6] | František Máliš[7] | Fraser Mitchell[8] | Fride Høistad | George Peterken[10] | Guillaume Decocq[6] | Hans Van Calster[11] | Jan Šeb | Jonathan Lenoir[6] | Jörg Brunet[13] | Kamila Reczyńska[14] | Krzysztof Świ | Diekmann[16] | Martin Kopecký[17,18] | Markéta Chudomelová[19] | Macek[17] | Miles Newman[8] | Monika Wulf[21] | Ondřej Vild[18] | orchler[23] | Petr Petrik[17,24] | Remigiusz Pielech[25] | Thilo Heinke | Dirnböck[27] | Thomas A. Nagel[28] | Tomasz Durak[29] | Tibor Sta | Naaf[20] | Wolfgang Schmidt[31] | Lander Baeten[1] | Pieter De Fre | Bernhardt-Römermann[32] | Radim Hédl[17,33] | Don Waller[34] | K

Community ecology

Short-term climate-induced change in French plant communities

Gabrielle Martin[1], Vincent Devictor[2], Eric Motard[3], Nathalie Machon[1] and Emmanuelle Porcher[1]

Biotic homogenization and changes in species diversity across human-modified ecosystems

Simon M. Smart[1,2,*], Ken Thompson[3], Robert H. Marrs[2], Mike G. Le Duc[2], Lindsay C. Maskell[1] and Leslie G. Firbank[1]

How citizen scientists contribute to monitor protected areas thanks to automatic plant identification tools

Pierre Bonnet[1,2] | Alexis Joly[3] | Jean-Michel Faton[4] | David Kimiti[6] | Benjamin Deneu[2,3] | Maximilien Serv | Jean-Christophe Lombardo[3] | Laura Mary[9] | Christel V

RESEARCH ARTICLE Open Access

Temporal changes in the Swiss flora: implications for flower-visiting insects

Stefan Abrahamczyk[1,5*], Michael Kessler[2], Tobias Roth[3,4] and Nico Heer[4]

Tracking the long-term dynamics of plant diversity in Northeast Spain with a network of volunteers and rangers

Maria Begoña García[1] · Jose Luis Silva[1] · Pablo Tejero[1] · Iker Pardo[1] · Daniel Gómez[1]

LETTER

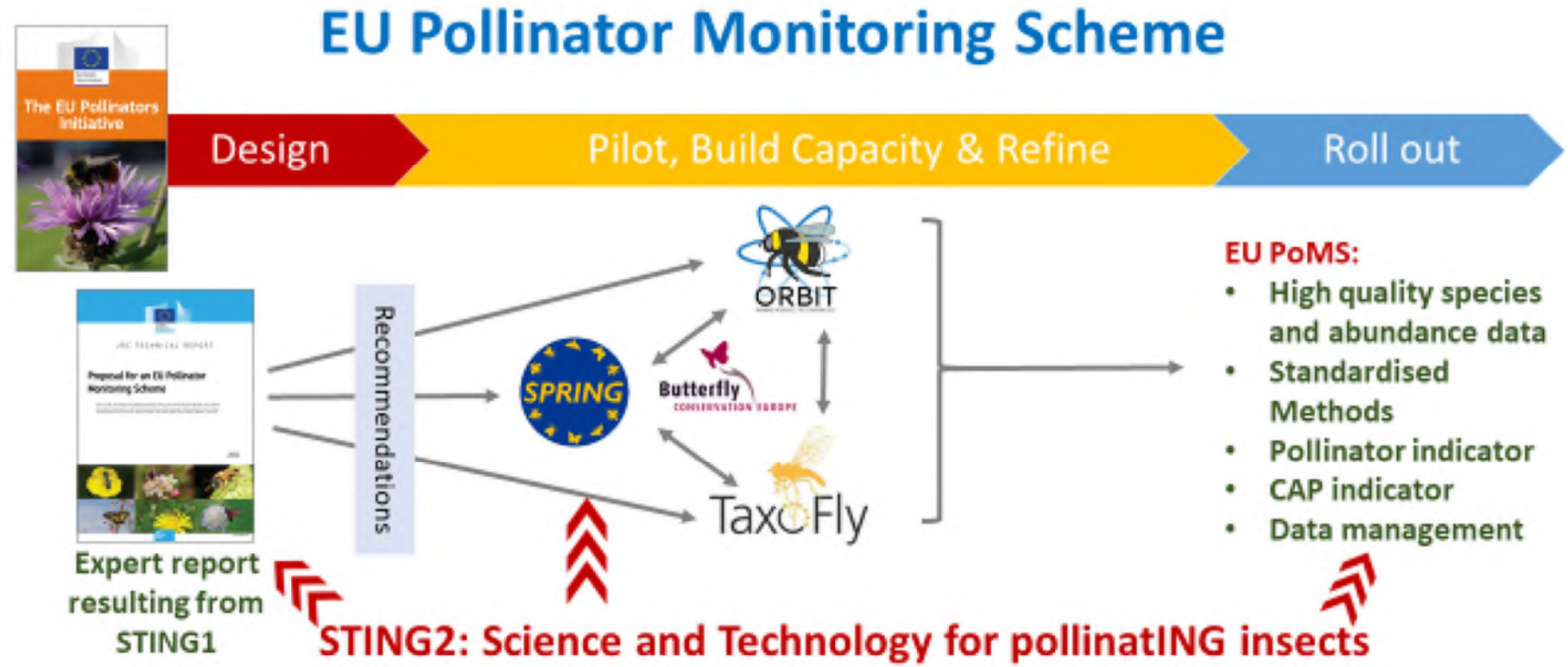
ECOLOGY LETTERS WILEY

Directional turnover towards larger-ranged plants over time and across habitats

Ingmar R. Staude[1,2] | Henrique M. Pereira[1,2,3] | Gergana N. Daskalova[4] | Markus Bernhardt-Römermann[1,5] | Martin Diekmann[6] | Harald Pauli[7,8] | Hans Van Calster[9] | Mark Vellend[10] | Anne D. Bjorkman[11,12] | Jörg Brunet[13] | Pieter De Frenne[14] | Radim Hédl[15,16] | Ute Jandt[1,2] | Jonathan Lenoir[17] |

Pollinators monitoring schemes in Europe

- EU-level structure A. Gumbert D. Michez



Plant-pollinator interactions

- Much fewer schemes?

N. Deguines

BarbaraMai- SPIPoll

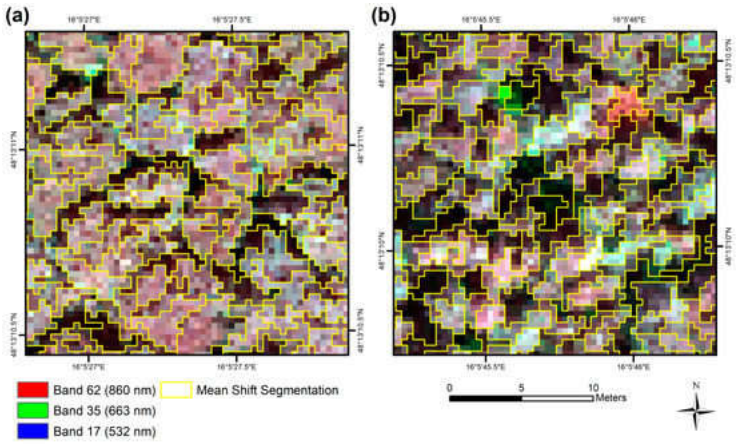
Picking up the pace on data collection

- **New identification tools**

A. Joly & P. Bonnet

- How to integrate these in structured monitoring schemes?

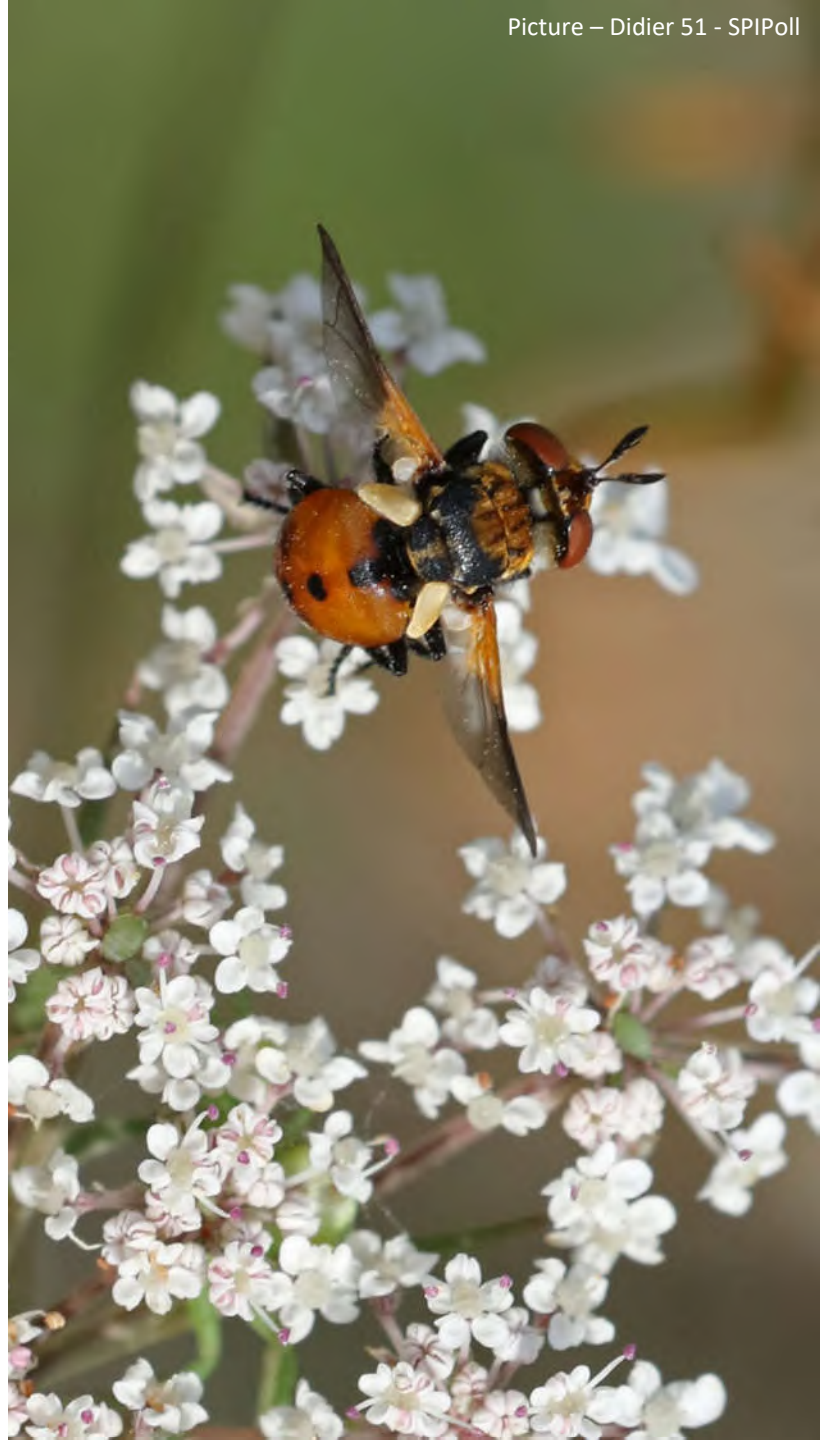
- Based on pictures, sounds, remote sensing data..



Maschler et al. 2018

Aims of the symposium

- Share knowledge on changes in plants, pollinators and their interaction across Europe (+USA)
- Identify possible collaborations
  - How to compare/combine existing results?
  - How to incorporate new tools?
  - How to better link plant and pollinator monitoring?
  - …


Picture – Didier 51 - SPIPoll

Thank you!