

European Butterfly Monitoring Scheme

eBMS in a nutshell



Reto Schmucki

UK Centre for Ecology & Hydrology



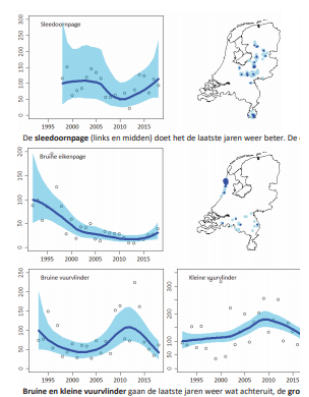
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[@SchmuckiReto](https://twitter.com/SchmuckiReto)

eBMS build on National efforts

- Strong basis of national Butterfly Monitoring Schemes
- Network of skilled citizen and professional scientists
- Local experts (transdisciplinary)



eBMS is a collaborative effort



LOLA-BMS



How Local-scale processes build up the Large-scale response of Butterflies to global changes: Integrative analysis across Monitoring Schemes

Principal Investigator: Romain Julliard, Muséum national d'Histoire naturelle (MNHN) (julliard@mnhn.fr); **Co-PI:** Guy Pe'er, UFZ, Germany

Post-Doctor: Reto Schmucki

11 participants: Leslie Ries, University of Maryland, USA; Chris van Swaay, De Vlinderstichting, The Netherlands; Arco van Strien, Netherlands Statistics, The Netherlands; David Roy, CEH, United Kingdom; Jeremy Thomas, University of Oxford, United Kingdom; Josef Settele, UFZ, Germany; Elisabeth Kühn, UFZ, Germany; Janne Heliölä, Finnish Envir. Inst., Finland; Mikko Kuussaari, Finnish Envir. Inst., Finland; Constanti Stefanescu, Museu Granollers-Ciències Naturals, Spain; Racheli Schwartz-Tzachor, Ramat Hanadiv Nature Park, Israel; Oliver T.H., NERC Centre for Ecology & Hydrology, Wallingford, Oxfordshire, UK.

Abstract:

The monitoring of biodiversity in response to environmental changes still much depends on human observers, and greatly relies on the activity of volunteers. Large data bases have been developed over time, following more or less standardized protocols. Butterflies* are the group of animals most studied after birds to evaluate the consequences of global changes on biodiversity. Standard Butterfly Monitoring Schemes (BMS) provide large quantities of data on population distribution and tendencies



eBMS

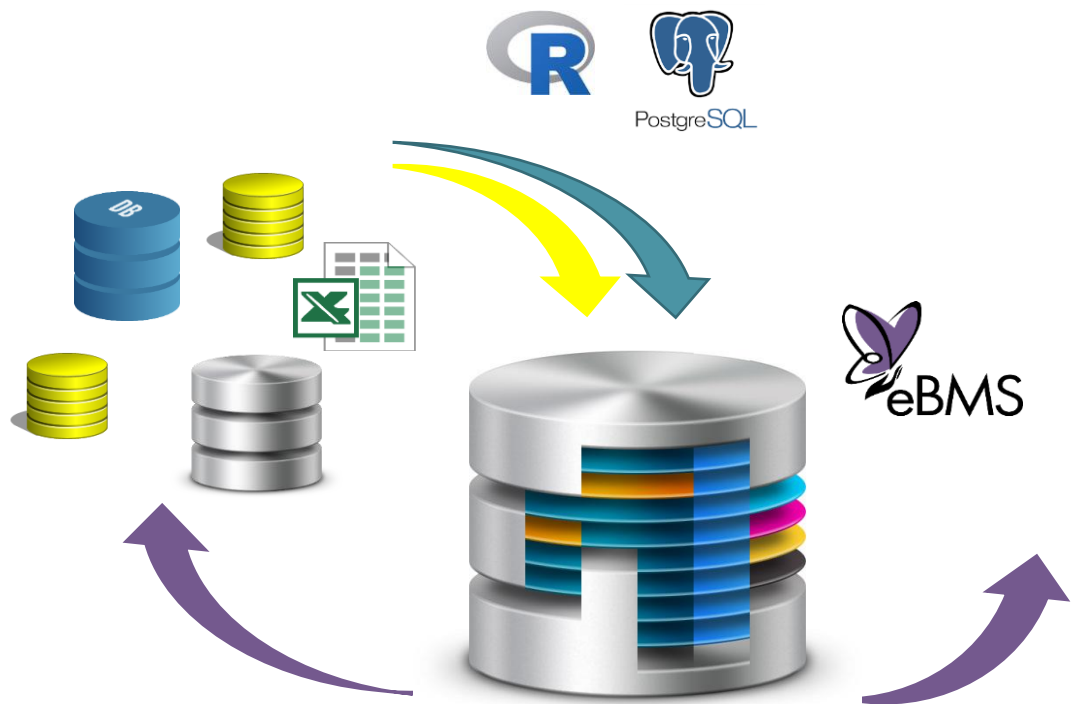
Building strength

- Inform on status and trend of Butterfly across Europe
- Sharing strength across schemes
- Building capacity
- Facilitate integrative approaches

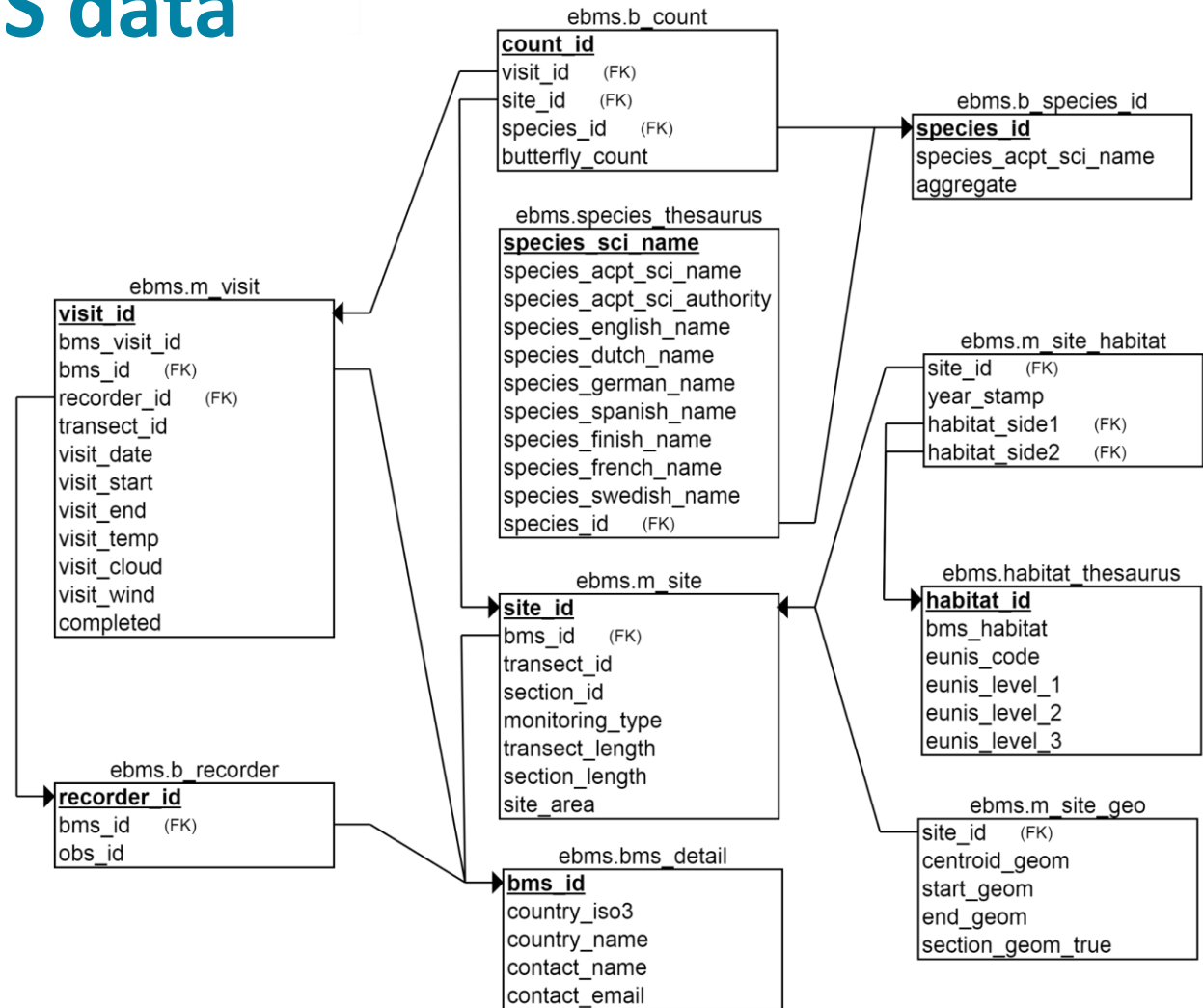


The eBMS concept

- ❖ Building capacity and opening new opportunities

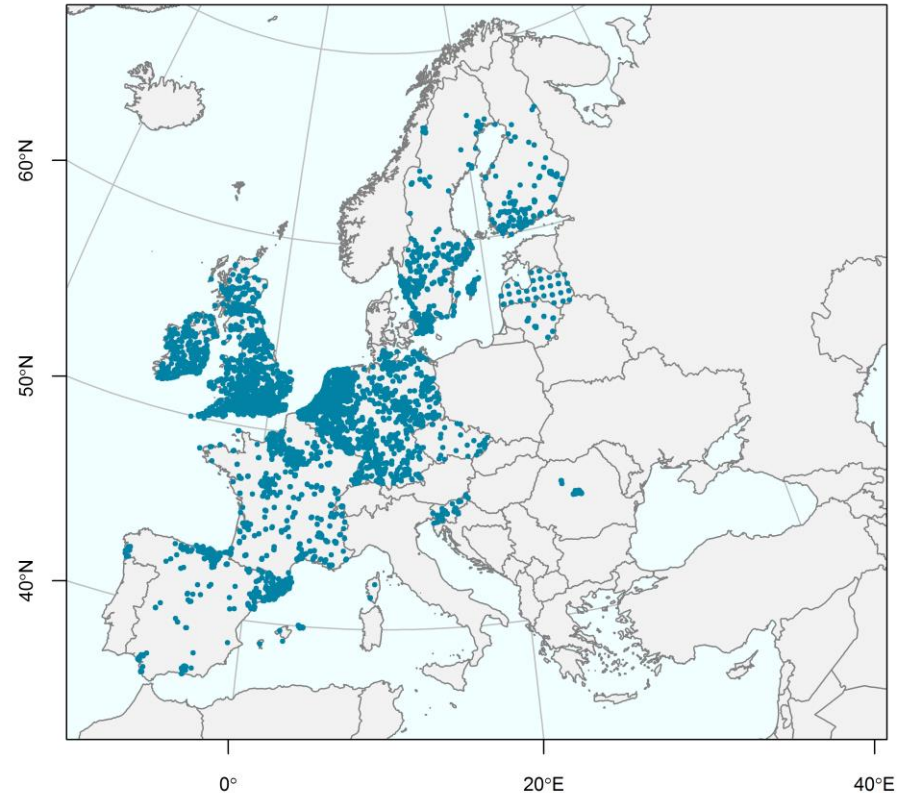


The eBMS data model



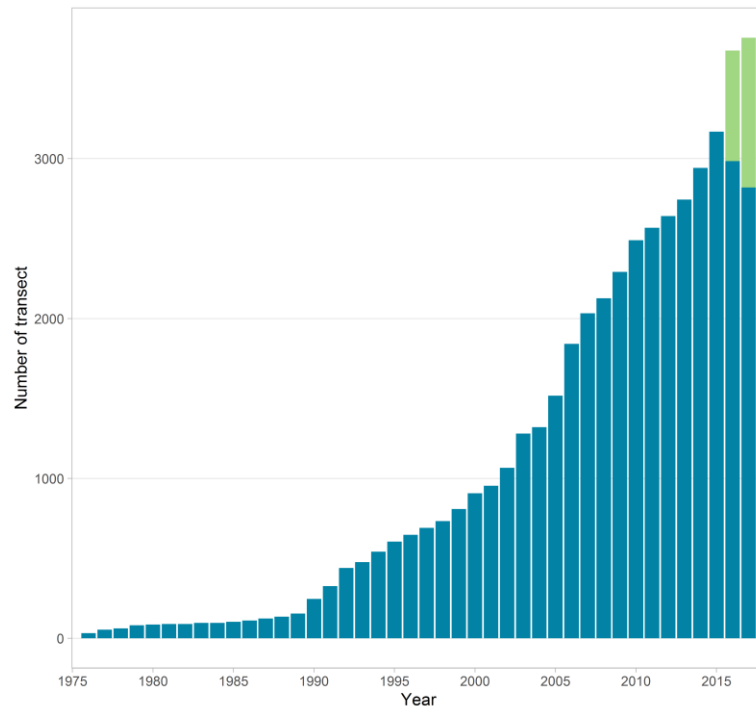
eBMS database (as of year 2017)

- 11, 930, 430 occurrences
- 7,308 transects (cumulative)
- 15 countries
- 15 visits per year (average)
- 56,000 km of transect walks in 2017

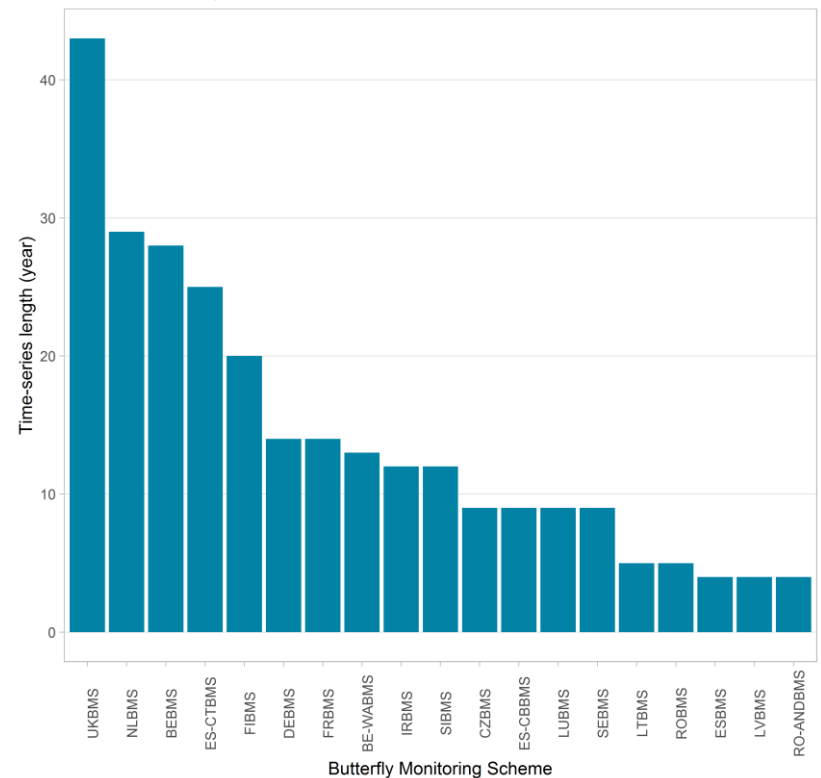


Monitoring transect & time-series

Number of BMS transect
Monitored for at least 3 years

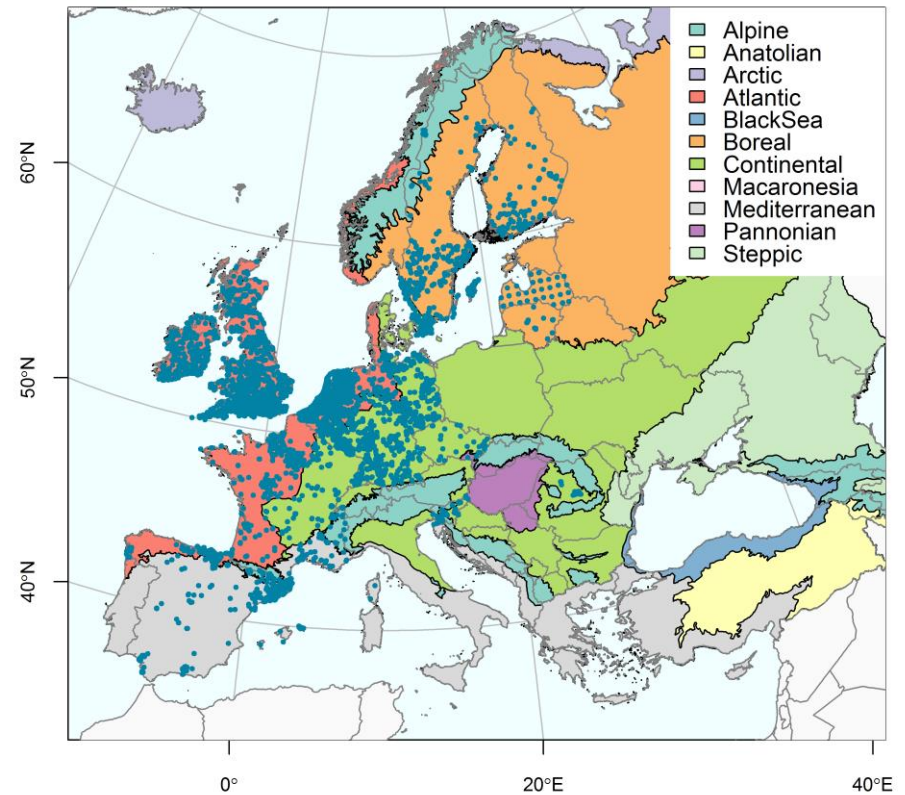


Time-series length per BMS

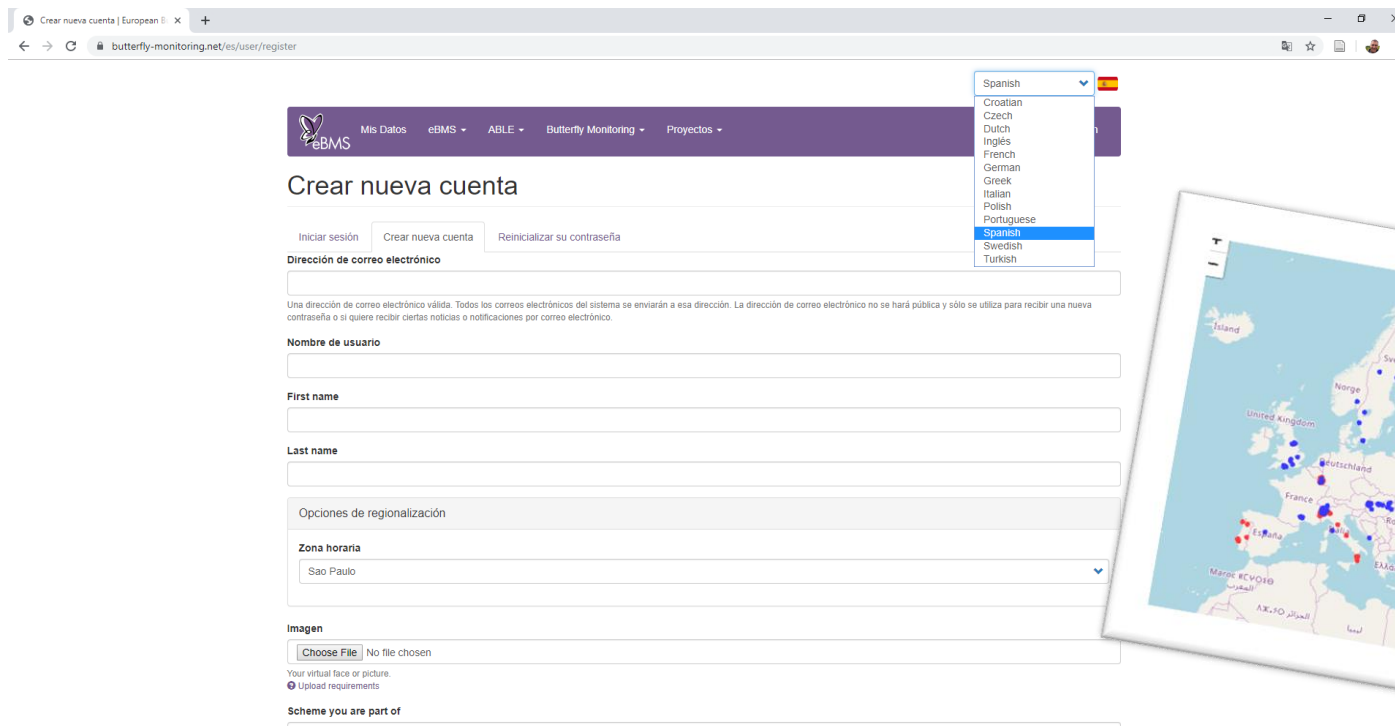


eBMS across biogeographic regions

Good coverage of the Atlantic region and highly clustered data in for the Mediterranean.



eBMS: expanding and filling the gaps



The screenshot shows the 'Crear nueva cuenta' (Create new account) page on the butterfly-monitoring.net website. A language dropdown menu is open, showing options: Spanish, Croatian, Czech, Dutch, Inglés, French, German, Greek, Italian, Polish, Portuguese, Spanish (highlighted), Swedish, and Turkish. The page includes fields for 'Dirección de correo electrónico', 'Nombre de usuario', 'First name', 'Last name', 'Zona horaria' (set to Sao Paulo), and 'Imagen'. A map of Europe is overlaid on the right side of the page, showing various countries and regions.

eBMS: expanding and filling the gaps

É um “censos para borboletas” e todos podem ajudar a contar

Projeto vai levar as pessoas às ruas para “caçar” borboletas – no bom sentido – para se analisar a qualidade dos habitats e os impactos das alterações climáticas e se verificar se os insetos estão mesmo a diminuir

Biodiversidade
Cláudia Carvalho Silva

Como borboletas e outras espécies de insetos são o teste de qualidade do ambiente, é importante que arranque hoje e que lancem como uma espécie de “censos para borboletas”, da iniciativa da Associação Portuguesa de Insetos (API), da qual Cláudia Carvalho Silva é presidente. A ideia é levar as pessoas às ruas para “caçar” borboletas – no bom sentido – para se analisar a qualidade dos habitats e os impactos das alterações climáticas e se verificar se os insetos estão mesmo a diminuir.



“Se as condições certas deixarem de existir, as borboletas vão desaparecer”

Eva Monteiro
Bióloga

Se as condições certas deixarem de existir, as borboletas vão desaparecer. É esta a mensagem que a bióloga Eva Monteiro quer transmitir. A especialista em conservação de insetos, que trabalha no Centro de Conservação de Insetos do Jardim Botânico de Portugal, defende que as borboletas são um excelente indicador da qualidade do ambiente. “Se as condições certas deixarem de existir, as borboletas vão desaparecer”, afirma. A especialista em conservação de insetos, que trabalha no Centro de Conservação de Insetos do Jardim Botânico de Portugal, defende que as borboletas são um excelente indicador da qualidade do ambiente.

Publicado a 4 de Maio de 2019 às 13h
CIÊNCIA



Il progetto Butterfly Monitoring Scheme Italia (BMS-It) che prevede la nascita di una rete di monitoraggio a lungo termine delle farfalle italiane. Il progetto è inserito nel progetto Assessorato Regionale della Protezione Ambientale (ARPA) e supportato dal Butterfly Conservation Europe (BCE) e dalla base nazionale e locale ed è strutturato in momenti di lavoro che possano conoscere i metodi standardizzati già applicati in altri paesi europei.

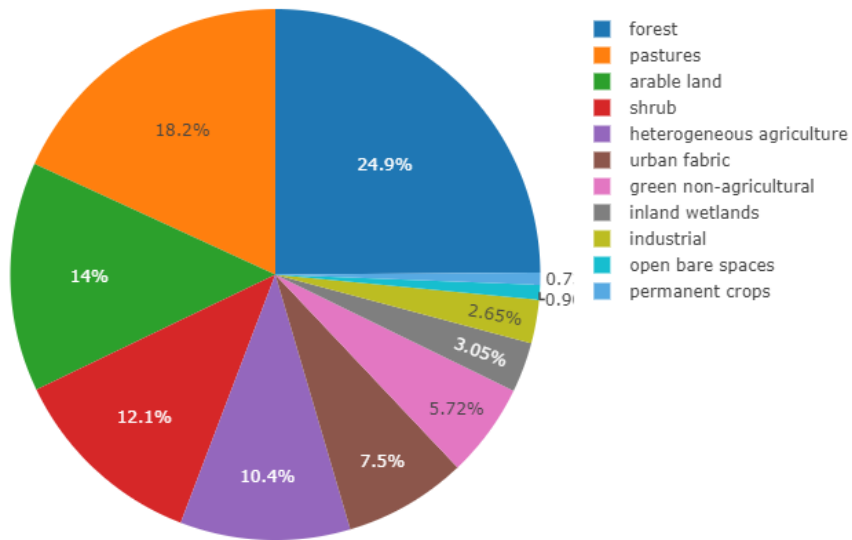
COFFEE BREAK
12.00-12.15 Simona Bonelli (Università di Torino) e coordinatrice nazionale BMS-It. Come il progetto si svolge e si utilizza un tratto di gestione dei dati e utilizzo del software FENIA. Come riconoscere le specie assai più comuni.

10.00-10.10 Registrazione dei partecipanti. Presidente del Parco Nazionale Arcipelago Toscano, responsabile NAI LAR e VNA Oristano. 10.10-10.20 Introduzione al workshop a cura di Leonardo Forbiconi (regolatore NAI LAR e VNA Oristano). 10.20-10.30 Introduzione al workshop a cura di Leonardo Forbiconi (regolatore NAI LAR e VNA Oristano). 10.30-10.45 Saluti di benvenuto a cura di Giampaolo Sammartini. Introduzione al workshop a cura di Leonardo Forbiconi (regolatore NAI LAR e VNA Oristano). 10.45-11.00 Introduzione al workshop a cura di Leonardo Forbiconi (regolatore NAI LAR e VNA Oristano).

Programma
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eBMS across the landscape



based on CORINE land cover
2018, with resolution 100m and
classification level 2



Photo: Chris van Swaay



Photo: Marten Warren

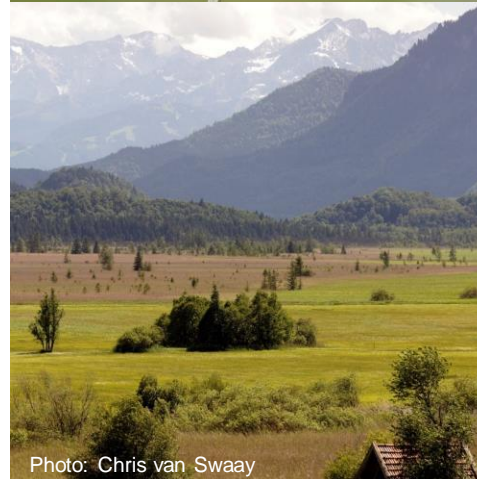


Photo: Chris van Swaay



Photo: Chris van Swaay

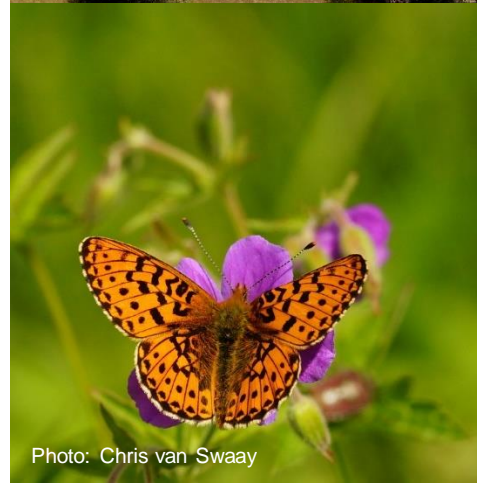


Photo: Chris van Swaay




Photo: Chris van Swaay



eBMS for conservation and habitat protection

35% of the eBMS transects located within 1 km of Natura 2000 sites (34% within).

Conservation Biology 

Contributed Paper |  Full Access |

Effects of Natura 2000 on nontarget bird and butterfly species based on citizen science data

V. Pellissier , R. Schmucki, G. Pe'er, A. Aunins, T.M. Brereton, L. Brotons, J. Carnicer, T. Chodkiewicz, P. Chylarecki, J.C. del Moral, V. Escandell, D. Evans, R. Foppen, A. Harpke, J. Heliölä ... See all authors 

First published: 07 November 2019 | <https://doi.org/10.1111/cobi.13434>



Photo: Chris van Swaay



Photo: Marten Warren

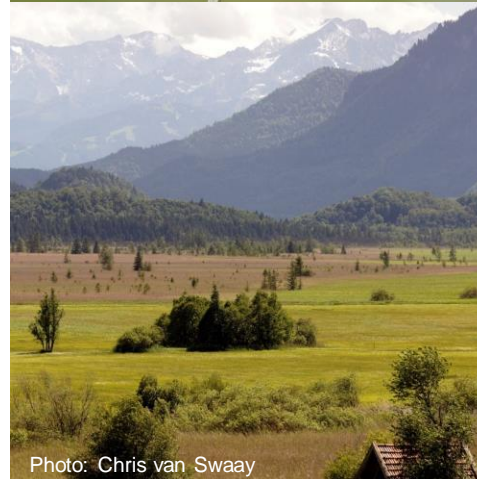


Photo: Chris van Swaay



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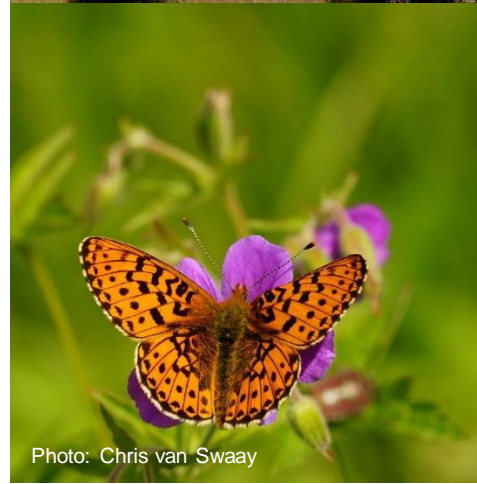


Photo: Chris van Swaay



Photo: Chris van Swaay

eBMS for science and policy

nature
climate change

LETTERS

PUBLISHED ONLINE: 10 JANUARY 2012 | DOI:10.1038/NCLIMATE1347

Differences in the climatic debts of birds and butterflies at a continental scale

Vincent Devictor^{1*}, Chris van Swaay², Tom Brereton³, Lluís Brotons^{4,5}, Dan Chamberlain⁶, Janne Heliölä⁷, Sergi Herrando⁴, Romain Julliard⁸, Mikko Kuussaari⁷, Åke Lindström⁹, Jiří Reif¹⁰, David B. Roy¹¹, Oliver Schweiger¹², Josef Settele¹², Constanti Stefanescu¹³, Arco Van Strien¹⁴, Chris Van Turnhout^{15,16}, Zdeněk Vermouzek¹⁷, Michiel WallisDeVries^{2,18}, Irma Wynhoff² and Frédéric Jiguet⁸

Received: 22 December 2016 | Revised: 18 August 2017 | Accepted: 22 August 2017

DOI: 10.1111/gcb.12659

RESEARCH PAPER

WILEY

Global Ecology
and Biogeography

A Journal of
Macronutrients

European butterfly populations vary in sensitivity to weather across their geographical ranges

Simon C. Mills¹ | Tom H. Oliver² | Richard B. Bradbury^{3,4,5} | Richard D. Gregory^{4,6} | Tom Brereton⁷ | Elisabeth Kühn⁸ | Mikko Kuussaari⁹ | Martin Musche⁸ | David B. Roy¹⁰ | Reto Schmucki¹⁰ | Constanti Stefanescu^{11,12} | Chris van Swaay¹³ | Karl L. Evans¹

Journal of Applied Ecology



Journal of Applied Ecology 2016, 53, 501–510

doi: 10.1111/1365-2664.12561

A regionally informed abundance index for supporting integrative analyses across butterfly monitoring schemes

Reto Schmucki^{1,2*}, Guy Pe'er^{3,4}, David B. Roy⁵, Constanti Stefanescu^{6,7}, Chris A.M. Van Swaay⁸, Tom H. Oliver^{5,9}, Mikko Kuussaari¹⁰, Arco J. Van Strien¹¹, Leslie Ries^{12,13}, Josef Settele^{4,14}, Martin Musche¹⁴, Jofre Camicer^{5,15}, Oliver Schweiger¹⁴, Tom M. Brereton¹⁶, Alexander Harpke¹⁴, Janne Heliölä¹⁰, Elisabeth Kühn¹⁴ and Romain Julliard¹

The EU Butterfly Indicator for
Grassland species: 1990-2017
Technical report


Butterfly
CONSERVATION EUROPE

Challenges and further development

- Improve the workflow of data standardization and quality check
- Inform habitat type from ground and remote sources
- Increase spatial accuracy and resolution of transect walk
- Facilitate accessibility to high-level data analysis
- Increase visibility of and good use of eBMS data

Thank you

Any questions?



UK Centre for
Ecology & Hydrology



Photo: Chris van Swaay