

EMBRACE – Short note of meeting with Members States, 28th March 2025

Attending: 49 representatives of Member States and Co-ordinators of the European Butterfly Monitoring Scheme

Andreas Gumbert from DG Environment welcomed everyone to the meeting and explained that the purpose was to inform representatives about this EU funded project to expand the European Butterfly Monitoring Scheme (eBMS) and produce updates on the EU Grassland Indicator (GBI). He stressed how important the eBMS was to the EU as it was one of the only schemes capable of producing European wide indicators to assess the health of biodiversity, and to produce the GBI, which is one of the key indicators on the EU Biodiversity Dashboard and one of the indicators that MS can chose to measure the success of policies to improve biodiversity in agricultural ecosystems by 2030 under Article 11 of the Nature Restoration Regulation. He was very pleased that the Commission could support the further development of the eBMS and urged Member States to consider supporting their national BMS if they do not already do so.

All presentations would be available after the meeting:

Chris van Swaay from De Vlinderstichting (Dutch Butterfly Conservation), who is the lead on the EMBRACE project (Expanding Monitoring of Butterflies for Restoration And Conservation across Europe 2021-2026), then welcomed everyone to the meeting and explained in further details the aims and objectives. These are available via [his Powerpoint presentation](#). He explained that questions on points of clarification would be taken after each of the three talks, which would be recorded, then there would be a general Q&A session which would not be recorded so attendees could speak freely. His talk mentioned that the eBMS is based on methods that were developed over 50 years ago in the UK and have been tried and tested since and had been shown to be rigorous and scientifically accurate. GBIs are now produced in several countries as well as at the EU and European level. Countries with enough data to produce a national GBI are those that invest in a paid co-ordinator to grow the scheme to produce enough data to calculate the GBI.

Reto Schmucki from the UK Centre for Ecology then gave a [presentation on the Grassland Butterfly Index](#) that covered the structure and growth of the eBMS and how the GBI is calculated. He explained how the flight period is calculated for each species to obtain more accurate trends even with a limited number of counts. Trends across Europe were weighted according to the proportion of the species distribution in each country or region. He stressed the robustness of the data as the schemes has grown and the fact that we now have a very long running dataset to produce indicators. A wide variety of habitats are covered in the eBMS, including cropland and urban, not exactly in the proportion that they occur but not that far off, and this can be accounted for by weighting. Verification of records occurs at several stages in the flow of data from recorder (with automatic checking for species not occurring in the area, records outside of the flight period and any unusually high numbers), through checks by the Country Co-ordinator, and further checks as they enter the central database. The methods had been published in peer-reviewed papers and were used widely.

Q&A

Q1: Can we calculate the flight and site index across every MS?

A1: Using the eBMS database, we borrow strength of neighbouring schemes by using the data from several BMSs covering the same region to inform the flight curve and thus the local indices. We plan to make these flight curve available to MS as a product of the eBMS database, even if they are not yet available.

Q2: Does the weighting used in the method account for ongoing change in distribution range?

A2: We use the latest version available for each species and this combine both the historic and current distribution. We do not include the dynamics of the change.

Q3: In mountainous countries, the flight period of butterflies varies in the lowlands and in the mountains. How does the method take account of that?

A3: Flight periods are calculated for different regions of Europe, so this is considered.

Cristina Sevilleja from De Vlinderstichting, who is co-ordinator of the eBMS, then gave a [presentation about Capacity Building in the eBMS and Cost Effectiveness](#). She explained the value of butterflies as indicators and the rapid growth of the eBMS, which gathers data largely from unpaid but expert volunteers. The eBMS now involved over 10,000 volunteers, 18 million counts of butterflies, 34 BMS in 30 European countries, and 1,3 million visits on 15,149 transects. The growth of the eBMS was helped enormously by two earlier EU funded projects: ABLE and SPRING. There are now BMS in every EU country, though some are very small and need support in order to grow and develop. The work of the national co-ordinator is crucial to recruit and motivate volunteers, help design transects and ensure good coverage, verify the data and ensure smooth transfer to the eBMS, and to engage local communities. The eBMS scheme ensures quality control through national co-ordinators who provide training for new recorders and through customised identification sheets. Recorders soon become familiar with all the species found on their transect and gain expertise quickly. Best practice is shared between schemes and new schemes learn as much as possible from long running ones. The eBMS is extremely cost effective because it engages a large number of expert (unpaid) volunteers who walk the transects but to make schemes sustainable a part-time paid coordinator needs to be supported from national funding. BMS provide data on butterfly trends at species and site level, which can be used to inform national and local land use policies as well as report on EU and International biodiversity obligations (eg Article 17 of the Habitats Directive and the CBD).

Q&A

Q: How do you deal with the bias of site selection of volunteers if they are left to choose places to monitor, will they tend to monitor the richest sites.

A1: This can be a problem with new schemes, but we encourage volunteers to monitor butterflies close to their home or place of work, so not always the best sites but where they will more likely gather data in the long term. As schemes grow, more and more diverse sites get covered, and any bias becomes less and less. We are also always trying to expand the coverage of schemes to include more species and more remote areas. We have developed the 15 minute count survey specifically to improve coverage of species in remote areas and rare species. Rare species only need to be monitored in their flight period, so it is far less of a commitment than doing a weekly transect.

A2. There are also technical ways of reducing bias in the analysis, by weighting records by habitat, region and by species distribution. This is already done in the GBI. There is also this paper that looked at potential bias and how many transects would be needed to get a trend in farmland:

Lang, A., F. Kallhardt, M. S. Lee, J. Loos, M. A. Molander, I. Muntean, L. B. Pettersson, L. Rákósy, C. Stefanescu, and A. Messéan. 2019. Monitoring environmental effects on farmland Lepidoptera: Does necessary sampling effort vary between different bio-geographic regions in Europe? *Ecological Indicators* 102:791–800.

A3. In the Netherlands, which has a lot of data, they tested weighted trends vs unweighted. The results were very similar for widespread species (which tend to have similar trends in a wide range of habitats) but not for habitat specialist butterflies, which need to be sampled in their respective habitats.

Q. A certain country wants to use the GBI, what is to stop them from just monitoring grassland sites because that is cheaper. Is it a requirement to cover cropland?

A. Yes, we always encourage as wide a coverage of different habitats as possible, including cropland. A country can use weighting when analysing any data to help overcome any bias in sampling.

Q. How do you ensure quality control for volunteer data? In some countries, volunteer data are not trusted and paid contractors are thought to be required to get good data.

A. In established schemes such as the Netherlands, volunteers are visited to check for accuracy, or they join a local self-help group to ensure accuracy. Checks are done at every stage of the gathering process. Numbers seen and location are checked at point of data entry to flag records outside of range or flight period or unusually large numbers of rarely seen species. Volunteers are also trained when they start and quickly learn the species on their transect as they walk it every 1-2 weeks. They quickly become as good on their patch as a paid expert would be. Tests have been done on the Dutch scheme and first year results vs later results when more experience has been gained, but the results show no great bias even in new recorders. A paid co-ordinator is essential to ensure that standards are maintained. A parallel project called EPIC Butterfly will also be producing online identification courses and materials to train people to implement the forthcoming EU PoMS. This will also help recruit and train new volunteers to ensure data quality. However, the eBMS is always keen to hear of suggestions of how to improve data quality.

Q. Most people live in towns and cities, so upland areas are often not well sampled. Birdlife have overcome this by using paid surveyors of rare species and remote areas. Is such a hybrid possible for butterflies?

A. Yes, a hybrid could work well for butterflies if countries could provide resources. However, we are already trying to address this issue by encouraging 15 minute counts of rare species in their flight period, and for remote areas. The number of 15 minute counts has grown rapidly showing that it is a very popular way of getting more people involved, including tourists and visitors.

Final remark from Sue Collins

We have found this discussion very useful and would be keen to follow up with further bilateral discussion with Member States. Please do not hesitate to contact us if you would like a further meeting to discuss the situation in your country.

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