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COVER NOTE

From: Secretary-General of the European Commission, signed by Ms Martine DEPREZ, Director

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To: Ms Thérèse BLANCHET, Secretary-General of the Council of the European Union

No. Cion doc.: C(2025) 6310 final

Subject: COMMISSION DELEGATED REGULATION (EU) .../... of 19.9.2025 supplementing Regulation (EU) 2024/1991 of the European Parliament and of the Council by establishing a science-based method for monitoring pollinator diversity and pollinator populations

Delegations will find attached document C(2025) 6310 final.

Encl.: C(2025) 6310 final



Brussels, 19.9.2025
C(2025) 6310 final

COMMISSION DELEGATED REGULATION (EU) .../...

of 19.9.2025

supplementing Regulation (EU) 2024/1991 of the European Parliament and of the Council by establishing a science-based method for monitoring pollinator diversity and pollinator populations

(Text with EEA relevance)

EXPLANATORY MEMORANDUM

1. CONTEXT OF THE DELEGATED ACT

1.1. General background and objectives

Pollinators are vital to our wellbeing and food security, and the survival of nature. They help plants reproduce by transferring pollen from male to female parts of flowers which enables the fertilisation. This pollination service supports around four in five crop and wild flowering plant species in Europe, day and night. In Europe, pollinators are primarily insects such as bees, flies, butterflies and moths.

In the European Union, pollinators have dramatically declined in recent decades. Populations of one in three bee, hoverfly and butterfly species are in decline. One in ten bee and butterfly species, and one in three hoverfly species are threatened with extinction. The decline in wild pollinators has prompted alarming calls across the society for a decisive action to tackle the causes of the decline, such as the ‘Save Bees and Farmers’ European Citizens’ Initiative, which collected over one million statements of support. Scientists have warned that without pollinators many plant species would decline and eventually disappear along with the organisms that depend on them. This would have far-reaching ecological, social and economic consequences.

To address this challenge, the Commission launched the EU Pollinators Initiative in 2018, and the New Deal for Pollinators¹ in 2023 with a view to reinforcing its actions. The adoption of the Nature Restoration Regulation² in 2024 enshrined the ambition of the New Deal for Pollinators in a legally binding target.

Under the Nature Restoration Regulation, Member States must improve pollinator diversity and reverse the decline of pollinator populations at the latest by 2030 and thereafter achieve an increasing trend of pollinator populations, measured at least every six years from 2030, until satisfactory levels are achieved.

The Nature Restoration Regulation also provides that Member States must monitor pollinator abundance and diversity using a science-based method. The Regulation empowers the Commission to adopt delegated acts to establish such a method (the ‘monitoring method’). The monitoring method must provide a standardised approach for collecting annual data on the abundance and diversity of pollinator species across ecosystems. When implementing the method, Member States must ensure that monitoring takes place on an adequate number of sites to ensure representativeness across their territories. The monitoring method must also provide a standardised approach for assessing pollinator population trends and the effectiveness of restoration measures in the national restoration plans, based on the collected data.

1.2. Legal background

This delegated regulation is based on Article 10(2) of the Nature Restoration Regulation which empowers the Commission to establish and update a science-based method for monitoring pollinator diversity and pollinator populations. This monitoring method will be the basis for assessing the progress made by the Member States towards meeting the targets set out in Article 10(1) of the Nature Restoration Regulation to improve pollinator diversity and reverse the decline of pollinator populations at the latest by 2030 and thereafter achieve an increasing trend of pollinator populations, measured at least every six years from 2030, until satisfactory levels are achieved.

¹ [COM/2023/35 final](#).

² [Regulation \(EU\) 2024/1991](#).

The delegated regulation complies with the proportionality principle because it does not go beyond what is necessary for achieving the objective of establishing a standardised science-based method for monitoring pollinator diversity and pollinator populations, as elaborated in the following section.

1.3. Scientific principles and methods underpinning the delegated regulation

1.3.1. Scientific and technical basis

The Commission has supported the development of a robust scientific basis for a cost-effective EU pollinator monitoring scheme (EU-PoMS) through the STING³ project since 2019. Under the coordination of the Commission's Joint Research Centre (JRC), the project brought together highly qualified experts, including in the areas of pollinator biology, biodiversity field surveys and ecological statistics, to develop scientific and technical options for EU-PoMS. These options were piloted and tested on the ground by the SPRING⁴ project. The results of STING were published as two JRC Technical Reports, the first STING report from 2021⁵ and the second STING report from 2024⁶, providing the state-of-the-art groundwork for the monitoring method set out in this delegated regulation.

1.3.2. General approach

The delegated regulation sets out a monitoring method which provides a standardised approach for collecting annual data on the abundance and diversity of pollinator species across ecosystems, for assessing pollinator population trends and the effectiveness of restoration measures adopted by Member States, as required by Article 10(3) of the Nature Restoration Regulation.

The method establishes a robust indicator system to measure changes in pollinator populations, composed of (i) a common pollinator indicator for assessing trends in the abundance and diversity of common pollinator species in each Member State, and (ii) a pollinator species richness indicator for assessing trends in the total number of pollinator species (common and rare) observed in a Member State.

The common pollinator indicator is composed of established metrics for assessing species abundance (the generalised abundance index) and diversity (the Shannon-Wiener Diversity Index). Given that rare pollinator species will not be recorded at most of the monitoring sites, these metrics are not suitable for covering rare pollinator species. Rare species will be addressed, jointly with common pollinator species, by establishing the total number of pollinator species recorded annually in each Member State (the species richness indicator).

To ensure adequate quantity and quality of data for the calculation of the common pollinator indicator and the pollinator species richness indicator, the monitoring method establishes a scientifically robust and cost-effective approach for collecting data on the abundance and diversity of pollinator species. The main features of this approach are the selection of

³ [Science and Technology for Pollinating Insects \(STING\)](#) and [Science and Technology for Pollinating Insects Plus \(STING+\)](#).

⁴ [Strengthening Pollinator Recovery through Indicators and Monitoring](#).

⁵ Potts, S., Dauber, J., Hochkirch, A., Oteman, B., Roy, D., Ahnre, K., Biesmeijer, K., Breeze, T., Carvell, C., Ferreira, C., Fitzpatrick, Ú., Isaac, N., Kuussaari, M., Ljubomirov, T., Maes, J., Ngo, H., Pardo, A., Polce, C., Quaranta, M., Settele, J., Sorg, M., Stefanescu, C. and Vujic, A. (2020): Proposal for an EU pollinator monitoring scheme, [JRC122225](#).

⁶ Potts, S.G., Bartomeus, I., Biesmeijer, K., Breeze, T., Casino, A., Dauber, J., Dieker, P., Hochkirch, A., Høye, T., Isaac, N., Kleijn, D., Laikre, L., Mandelik, Y., Montagna, M., Montero Castaño, A., Öckinger, E., Oteman, B., Pardo Valle, A., Polce, C., Povellato, A., Quaranta, M., Roy, D., Schweiger, O., Settele, J., Ståhls-Mäkelä, G., Tamborra, M., Troost, G., Van Der Wal, R., Vujic, A. and Zhang, J. (2024): Refined proposal for an EU pollinator monitoring scheme, [JRC138660](#).

monitoring sites by stratified random sampling, the use of transect walks and light traps for common species, and targeted field visits for rare species.

The data collection approach and the assessment approach that leads to the calculation of the indicators form a coherent methodological package. This package strikes a balance between the necessary data volume to build robust and reliable indicators, the minimum number of monitoring sites and the data collection effort required at each site. The selection of monitoring sites based on stratified random sampling is a core feature of this methodological coherence.

1.3.3. Target species

In Europe, flowering plants are pollinated by a broad range of taxonomic groups of insects such as bees, hoverflies and other flies, butterflies, moths, wasps, thrips, and beetles. While, in principle, pollinator monitoring should include all groups, the currently available capacities justify limiting the scope to bees, hoverflies, butterflies and moths (excluding micro-moths). This aims to enable Member States to effectively implement the monitoring method and gradually build capacity for monitoring other groups in an efficient manner. The selected four groups encompass a wide range of specific roles that pollinators play in agricultural and forest ecosystems, as well as other ecosystems (including urban ecosystems and non-managed natural ecosystems other than forests) through day and night pollination.

In line with the Nature Restoration Regulation, the monitoring scope is limited to wild pollinator species. For this reason, the honeybee (*Apis mellifera*) is excluded from the scope of the delegated regulation. The honeybee is primarily managed by humans, and its presence in the wild is limited. Distinguishing between managed and wild honeybee populations in the field would be difficult and too burdensome.

Alien pollinator species are species introduced outside their natural range. They do not contribute to native pollinator communities and can even pose a threat. Member States may include alien pollinator species in the monitoring scope with a view to improving surveillance of the spread of such species. However, alien pollinator species are excluded from the assessment of the trends in the abundance and diversity of pollinators.

1.3.4. Species identification

The Nature Restoration Regulation requires the collection of data on the abundance and diversity of pollinator species across ecosystems. This necessitates identification of observed and caught specimens to the species level.

The delegated regulation gives flexibility to Member States regarding the methods for species identification. The methods should be scientifically proven. For transect walks, the share of specimens identified directly in the field will increase as the expert capacity grows.

1.3.5. Selection of monitoring sites

A cost-effective monitoring calls for a minimum effort to collect adequate data for assessing the progress towards the targets set out under Article 10(1) of the Nature Restoration Regulation. The method set out in the delegated regulation is based on monitoring of pollinators on a minimum number of sites that are representative of the whole territory of a Member State. To ensure this, the selection of the monitoring sites must be undertaken in a randomised manner across the entire territory. Otherwise, bias would be introduced in the data collection process, making the assessment based on such data unreliable. Site selection by random sampling is a key principle to obtain a statistically robust monitoring method.

Stratified sampling of monitoring sites is applied by dividing the entire set of potential sampling sites in the terrestrial territory of a Member State into strata (differentiated by major

ecosystem types and biogeographical regions), which are to be properly represented in the site selection process.

The minimum number of sites in each Member State has been calculated through a robust scientific process based on literature review, analysis of real-world monitoring data and data generated by a computer model, statistical power analysis, and expert assessment. The modelling approach assessed the relationship between the number of sites, the statistical power to detect a certain level of change in common pollinator species abundance and the requirement to collect a sufficient number of observations to calculate the abundance for at least 30 % of the species.

The calculation was undertaken separately for each Member State as the Nature Restoration Regulation sets a legally binding target on pollinators at national level. The major factors that determined the minimum number of sites were species richness and land cover heterogeneity in a Member State – two factors that vary substantially across Member States. The country size had a limited and indirect impact, where it affected species richness or land cover heterogeneity. This is why a reasonable number of sites is also needed in small-sized Member States. This aligns with the principles of statistical science: the primary factor in determining the size of a sample (i.e. the minimum number of sites) from a statistical population (i.e. the whole territory of a Member State) is the population's variability (i.e. the degree to which relevant parameters vary within the population) rather than the size of the sample relative to the population.

The method defines a monitoring site as a 2 km-by-2 km square centred on a point of the LUCAS⁷ master grid. This gives sufficient flexibility to Member States to effectively position a 1 km transect or a light trap within a monitoring site. The well-established and widely used LUCAS grid was chosen to standardise and facilitate the stratified random sampling process in Member States. Information on land cover and land use is readily available for this grid.

Minimum distances between monitoring sites are set to ensure that they are spread out across the territory of a Member State.

The delegated regulation provides a list of optional exclusion criteria which Member States may use to exclude locations that might be too burdensome or impossible to monitor (remote or inaccessible sites).

The delegated regulation also provides that the monitoring sites should not be changed in the course of an assessment period – this is fundamental to avoid any potential bias. It sets clear rules for substituting a selected site in case it subsequently becomes inaccessible.

Considering that a high percentage of land is privately owned, it is important that Member States establish cooperation with landowners and land managers with a view to facilitating the deployment of monitoring activities on private land.

1.3.6. Protocols for field data collection

For day-active pollinators (i.e. bees, hoverflies, butterflies and day-active moths), transect walks are the most cost-effective method to collect field data for a standardised trend analysis. To avoid a statistical bias, a key requirement is to standardise the data collection protocol in terms of space (location and length of the transect trajectory, and observation space around a surveyor) and time (duration of observation on the transect trajectory). Moreover, to ensure adequate quantity and quality of collected data, transect walks should be undertaken separately for bees, hoverflies, and butterflies in combination with day active moths as they

⁷ [Land Use/Cover Area frame Survey.](#)

differ in appearance and behaviour, which makes it difficult for a surveyor to properly monitor more than one group at a time.

For night-active moths, light traps are the most cost-effective method to collect field data for a standardised trend analysis. As for transect walks, space (position of a light trap) and time (frequency and time interval between active periods of a light trap) should be standardised in the data collection protocol. To avoid a statistical bias, it is important to standardise the light trap design, while taking account of the need to adjust to light conditions in the northern latitudes.

The monitoring of rare pollinators species will be undertaken by targeted field visits at known locations. It will be limited to species assessed as critically endangered according to the EU Red List, and/or national red lists of threatened species.

1.4. Simplification, burden reduction and cost-effectiveness

The monitoring method set out in the delegated regulation is designed to ensure a scientifically robust measurement of pollinator populations and diversity, while minimising both the administrative burden and the implementation costs for Member States.

While pollinators encompass tens of thousands of species across numerous taxonomic groups of insects, the method limits the monitoring scope to four taxonomic groups: bees, hoverflies, butterflies, and moths (excluding micro-moths). For these groups, the monitoring capacity already exists or can be built cost-effectively in the short term. To further reduce the burden on Member States, only larger species of moths are included as their identification can be facilitated by image recognition and artificial intelligence.

To limit the burden on Member States, the method puts in place a specific regime for monitoring rare pollinator species. Rare pollinator species are to be monitored by targeted field visits on known locations, which is more resource-efficient than covering them in the stratified random sampling regime for site selection put in place for common species. This methodological choice enables minimising the number of monitoring sites for common species. Moreover, to further reduce the burden on Member States, the number of rare species to be monitored is limited: targeted monitoring is obligatory only for critically endangered species, and Member States can limit that number to 15.

The delegated regulation provides a broad margin for Member States to adapt the method according to their needs and specific characteristics:

- It allows Member States to define the number of monitoring sites for common species, while setting a minimum number of sites for each Member State. The minimum number represents the lower end of the sampling effort that needs to be undertaken to obtain a statistically sound quantification of the trends in pollinator abundance and diversity. This minimum enables adequate data collection on the abundance for only 30% of species.
- Member States may exclude remote or inaccessible locations from a random sample of sites.
- Member States may use pre-established monitoring sites if those sites were selected in accordance with the rules for site selection set out in the delegated regulation.
- Member States have flexibility to define the annual observation period and optimal environmental conditions for field surveys within this period.
- Member States also have flexibility to position the transect trajectory and light traps within a monitoring site, and to determine an optimal design of light traps.

The above aspects of the monitoring method minimise technical requirements, administrative burden and logistics in Member States, ensuring the most cost-effective approach to reach the objective set out in the Nature Restoration Regulation.

1.5. Support to Member States in the implementation of the delegated regulation

The Commission has undertaken significant investments to help Member States build capacity and prepare for the implementation of the monitoring method.

The SPRING project offered tailored support to Member States for building the administrative and technical capacity for implementing the monitoring method, while the STING+ project incorporates a technical helpdesk for national authorities to facilitate its roll-out.

The Commission currently supports training of field surveyors for pollinator monitoring and identification of pollinator species through the EPIC⁸ projects (EPIC-bee, EPIC-fly, and EPIC-butterfly).

The Commission also supports the development of taxonomic tools necessary for pollinator monitoring through the ORBIT⁹ and Taxo-Fly¹⁰ projects, as well as through the Horizon Europe TETTRIs¹¹ and MAMBO¹² projects.

1.6. Estimated costs for the implementation of the delegated regulation

The annual cost for the implementation of the monitoring method as set out in the delegated regulation was estimated at EUR 11.9 million (2024 prices) for the Union as a whole. This translates to a 33 to 37% reduction compared to the initial cost estimate in the impact assessment¹³ underpinning the Commission proposal for the Nature Restoration Regulation.

The initial cost estimate was based on the first STING report and ranged between EUR 17.7 and EUR 18.9 million when adjusted for inflation (2024 prices).

The updated estimate includes the costs of investments into materials used for the monitoring, the execution of field surveys (transect walks, light traps, and targeted field visits for rare species), the identification of pollinator specimens in the laboratory and their storage, postage of material for identification and storage purposes, training of surveyors, overhead costs, and non-wage labour costs.

The difference between the initial and the updated cost estimate is due to the streamlined and simplified monitoring methodology. The updated cost estimate was based on a monitoring method that includes the following changes compared to the method for the initial cost estimate:

- The transect walk is the only method for monitoring common species of bees, hoverflies, butterflies and day-active moths (compared to a combination of transect walks and pan traps considered in the initial estimate).
- The minimum number of sites on which the monitoring surveys are to be carried out has been reduced (1820 compared to 1988 in the initial estimate).
- Criteria have been added to allow Member States to exclude remote or inaccessible locations from a random sample of sites.

⁸ [European Pollinator Courses](#).

⁹ <https://orbitproject.wordpress.com>

¹⁰ <https://www.helsinki.fi/en/projects/taxonomic-information-european-hoverfly-species>

¹¹ [Transforming European Taxonomy through Training, Research and Innovations](#).

¹² [Modern Approaches to the Monitoring of Biodiversity](#).

¹³ SWD(2022) 167 final, PART 5/12, p. 497.

The calculation method used for the updated cost estimate was enhanced by:

- Including additional elements that were not accounted for in the initial estimate, such as overhead costs, costs for the site selection, data entry and validation, and for the storage of collected specimens.
- Assuming a higher share of specimens (20-50 % for bees and 10-20 % for hoverflies, depending on a biogeographical region) that need to be identified in a laboratory compared to the initial estimate, particularly in the first three monitoring years and in the Mediterranean region due to its higher species diversity.
- Assuming that monitoring will be carried out fully by paid professionals. The integration of citizen science, which could potentially contribute to lowering the monitoring costs, was not accounted for in contrast to the initial estimate.

Despite the inclusion of these additional costs, the monitoring method set out in this delegated regulation is significantly more cost-effective compared to the initial methodology presented in the impact assessment of the Nature Restoration Regulation. The reasons for this lie in the streamlining and simplification of the methodology, as elaborated in Section 1.4.

1.7. Synergies with other policies

Annex I to the Regulation on strategic plans for the Common Agricultural Policy¹⁴ indicates that the trends for pollinators are to be assessed by using relevant Union measures for pollinator indicators. The pollinator indicators set out in this delegated regulation are appropriate measures for this purpose.

2. CONSULTATIONS PRIOR TO THE ADOPTION OF THE DELEGATED ACT

2.1. Consultation of Member States and stakeholders

Member States and stakeholders were consulted on the draft delegated regulation through the EU Biodiversity Platform¹⁵ Working Group on Pollinators (meetings of 20 November 2024, 16 December 2024, 19 February 2025 and 28 May 2025) and the Expert Group on the Nature Restoration Regulation (meeting of 1 July 2025).

Based on feedback received from these consultation activities, the Commission integrated a number of modifications into its draft delegated regulation, with the aim to facilitate the implementation and reduce the burden on Member States while maintaining the scientific robustness of the monitoring method. The modifications included in particular the following:

- Substantially reduced scope of species to be monitored
- More flexible rules for site selection to ensure a cost-effective sampling process
- Use of pre-existing sites for monitoring (if they meet the rules for site selection)
- Flexible definition of an observation period
- Transect walk shortened to 1 km in length and 60 minutes in duration
- Reduced number of light traps on each monitoring site (two)
- Flexible operationalisation of data collection protocols regarding the monitoring frequency and optimal environmental conditions for their execution
- Flexibility in positioning the transect trajectory

¹⁴ [Regulation \(EU\) 2021/2115](#).

¹⁵ [EU Biodiversity Platform \(E02210\)](#).

- Flexibility in positioning and design of light traps
- Simplified approach for monitoring of rare species: reduced effort to establish the presence of rare species, more limited number of species to be monitored and flexibility to prioritise the species based on EU or national Red List
- Combined assessment of population trends of all pollinator groups
- Simplified indicator for rare species

In addition, further modifications were made in the draft delegated regulation to enhance clarity of the legal text.

2.2. Public feedback

The draft delegated regulation was published for public feedback on the Have Your Say portal from 19 June 2025 until 17 July 2025¹⁶. In total, feedback was received from 4044 stakeholders, including EU citizens (3868), non-EU citizens (85), non-governmental organisations (23), academic/research institutions (17), environmental organisations (12), companies/businesses (10), business associations (7), public authorities (4), consumer organisations (1), and other stakeholders (17).

The overwhelming majority (more than 90%) of EU citizens, non-EU citizens, NGOs, academic/research institutions and environmental organisations supported the draft delegated regulation, calling on the Commission to maintain the level of ambition and the core elements of the proposed monitoring method or to further strengthen them. Virtually all respondents from these stakeholder groups highlighted the urgent need to restore pollinator populations, with the majority of them stressing the importance of a robust monitoring method. About a quarter of respondents expressed preference for a more ambitious monitoring method that would entail a larger number of monitoring sites, a broader taxonomic scope of the monitoring, or additional or more intensive methods for data collection. The need for capacity building and continued investment in training was underlined by some stakeholders, in particular academic/research institutions.

Academic/research institutions either supported the monitoring method as proposed (35 %) or made suggestions to strengthen it (41 %). Some of these suggestions entailed methods which are still in the stage of development. Different views were expressed on the use of DNA-based monitoring methods for bulk monitoring of pollinators. Some academic/research institutions (12 %) considered that the approach in the draft delegated regulation could entail higher implementation costs than estimated.

Companies/business and business associations either fully supported the proposed monitoring method (50 %), or a simpler and more flexible scheme (25 %), or requested the monitoring scheme to be more ambitious (19 %). Associations of farmers and forest owners stressed the need to consider access to private land, avoiding disturbance to their economic activities or costs to landowners, as well as the need to avoid negative implications from the publication of monitoring locations.

Public authorities supported the proposal, while stressing the difficulties of monitoring night-active moths in urban areas (50 %), suggesting sufficient flexibilities regarding the site selection (25 %).

Overall, the public feedback demonstrated a high level of support for the monitoring method set out in the draft delegated regulation across various stakeholder groups. The received

¹⁶ https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14689-Nature-Restoration-Regulation-science-based-method-for-monitoring-pollinator-diversity-and-pollinator-populations_en

feedback indicated that the monitoring method ensured a good balance between the scientific robustness of the monitoring method and its practical implementation on the ground.

3. LEGAL ELEMENTS OF THE DELEGATED ACT

This delegated regulation is based on the empowerment set out in Article 10(2) of the Nature Restoration Regulation.

Article 1 lays down the definitions.

Article 2 lays down rules on the pollinator species to be monitored.

Article 3 lays down rules on the monitoring sites.

Article 4 lays down rules on the observation period.

Article 5 lays down the data collection protocol for bees, hoverflies, butterflies and day-active moths.

Article 6 lays down the data collection protocol for night-active moths.

Article 7 lays down the data collection protocol for rare pollinator species.

Article 8 lays down rules on the species identification.

Article 9 lays down rules on the assessment of pollinator population trends.

Article 10 lays down rules on the assessment of the effectiveness of restoration measures.

COMMISSION DELEGATED REGULATION (EU) .../...

of 19.9.2025

supplementing Regulation (EU) 2024/1991 of the European Parliament and of the Council by establishing a science-based method for monitoring pollinator diversity and pollinator populations

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 June 2024 on nature restoration and amending Regulation (EU) 2022/869¹⁷, and in particular Article 10(2) of Regulation (EU) 2024/1991,

Whereas:

- (1) Regulation (EU) 2024/1991 requires Member States to improve pollinator diversity and reverse the decline of pollinator populations at the latest by 2030 and thereafter to achieve an increasing trend of pollinator populations, measured at least every six years from 2030, until satisfactory levels are achieved.
- (2) The Commission is to establish a science-based method for monitoring pollinator diversity and pollinator populations (the ‘monitoring method’) that provides a standardised approach for collecting annual data on the abundance and diversity of pollinator species across ecosystems, and for assessing pollinator population trends and the effectiveness of restoration measures.
- (3) Regulation (EU) 2024/1991 requires Member States to monitor annually the abundance and diversity of pollinator species using the monitoring method and to report the results of the monitoring to the Commission.
- (4) To ensure the collection of high-quality data and thereby a scientifically sound assessment of progress towards the target for restoration of pollinator populations, the monitoring method should be based on established scientific principles and methods. Despite being standardised across Member States, the monitoring method should allow sufficient flexibility to address local environmental conditions.
- (5) The scope of the monitoring method should target the taxonomic groups of pollinators for which there is sufficient technical capacity for monitoring or where such capacity can be built cost-effectively in the short term. The scope should be reviewed and broadened to additional taxonomic groups of pollinators when the technical capacity increases in the future.
- (6) To ensure the cost-effectiveness of the monitoring method, a variety of approaches should be used for monitoring of common pollinator species and rare pollinator species. Common species should be monitored on sites selected by applying a stratified random sampling approach. Rare pollinator species should be monitored by

¹⁷ OJ L 2024/1991, 29.7.2024, p. 1-93, <http://data.europa.eu/eli/reg/2024/1991/oj>

targeted field visits as population trends for these species cannot be discerned by stratified random sampling at a limited number of monitoring sites.

- (7) Considering the limited capacity for monitoring of rare pollinator species by targeted field visits, efforts should be focused on the most threatened species at Union or national level, and Member States should be allowed to limit the monitoring to 15 rare pollinator species. The number of rare pollinator species to be monitored should be reviewed and enlarged when capacity for targeted monitoring increases in the future.
- (8) Regulation (EU) 2024/1991 requires Member States to ensure that the monitoring data comes from an adequate number of monitoring sites to ensure representativeness across their territories. For this, and to ensure that the trend in pollinator abundance and diversity can be confidently determined, it is necessary to set a minimum for the number of monitoring sites at which data is to be collected in each Member State. Setting this minimum number will allow Member States to monitor a larger number of monitoring sites so they can better detect changes in pollinator abundance and diversity.
- (9) The activity of pollinators is affected by various environmental conditions, which depend on local circumstances. Therefore, the monitoring should be limited to periods in which pollinators are active at the adult stage of their life cycle. Suitable environmental conditions for monitoring should be defined at national, regional, or local level, as appropriate.
- (10) The diversity of common pollinator species should be described using the Shannon-Wiener Diversity Index¹⁸, a widely accepted metric for quantifying biological diversity. The abundance of common pollinator species should be quantified by combining the abundances of individual pollinator species for which monitoring data are sufficient.
- (11) It is appropriate to combine abundance and diversity of all common species monitored into a single common pollinator indicator, which provides one value per Member State per year.
- (12) Alien species, as defined in Regulation (EU) No 1143/2014 of the European Parliament and of the Council¹⁹, should not be taken into account when assessing the abundance and diversity of pollinator species, since the presence of such species cannot be considered as a contribution to native pollinator communities but rather constitutes a threat to biodiversity.
- (13) Since the Shannon-Wiener Diversity Index is not a suitable metric for the diversity of rare species, in order to represent the overall diversity of pollinator species, both common and rare, it is appropriate to integrate rare pollinator species into the assessment of pollinator diversity through a pollinator species richness indicator, i.e. an indicator that combines the number of rare and common pollinator species recorded in a Member State. The monitoring of rare species should exclude moths, because the monitoring burden cannot be estimated due to the current lack of red list assessments for moths.

¹⁸ Allaby, M. (2020) A Dictionary of Zoology (5 ed.). Oxford University Press, Oxford.
doi: [10.1093/acref/9780198845089.001.0001](https://doi.org/10.1093/acref/9780198845089.001.0001).

¹⁹ Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management and the introduction and spread of invasive alien species (OJ L 317, 4.11.2014, p. 35-55, ELI: <http://data.europa.eu/eli/reg/2014/1143/oj>).

- (14) To assess the effectiveness of restoration measures implemented in a Member State, trends in the abundance and diversity of pollinator species should be estimated in agricultural ecosystems, forest ecosystems, and other ecosystems, respectively, given that the restoration measures are substantially different in each of those ecosystem types,

HAS ADOPTED THIS REGULATION:

Article 1

Definitions

For the purpose of this Regulation, the following definitions shall apply:

- (1) ‘bees’ means species of Anthophila (Apoidea), excluding the honeybee (*Apis mellifera*);
- (2) ‘hoverflies’ means species of Syrphidae;
- (3) ‘butterflies’ means species of Papilionoidea;
- (4) ‘moths’ means species of the following families of Heterocera: Brachodidae, Castniidae, Cimeliidae, Drepanidae, Erebiidae (including Lymantriinae), Euteliidae, Geometridae, Heterogynidae, Limacodidae, Noctuidae, Nolidae, Notodontidae, Sesiidae, Sphingidae, Uraniidae, and Zygaenidae, provided they have a wingspan of 20 mm or more assessed on the basis of literature;
- (5) ‘day-active moths’ means species of moths that are active in the daytime at the adult stage of their lifecycle;
- (6) ‘night-active moths’ means species of moths that are active at night at the adult stage of their lifecycle;
- (7) ‘LUCAS master grid’ means a variation of the INSPIRE Lambert Azimuthal Equal Area 1 km Grid (Grid_ETRS89-LAEA_1km), based on the ETRS89 Lambert Azimuthal Equal Area Coordinate Reference System (ETRS89-LAEA), with a fixed projection centre at 52°N, 10°E²⁰;
- (8) ‘stratified random sampling of monitoring sites’ means a standardised statistical sampling, where monitoring sites have an equal probability of being selected from a population that is partitioned in sub-populations (strata);
- (9) ‘biogeographical regions’ means biogeographical regions listed in Article 1, point (c)(iii), of Directive 92/43/EEC²¹;
- (10) ‘other ecosystems’ means ecosystems other than agricultural ecosystems and forest ecosystems that are aggregated in one stratum;
- (11) ‘transect walk’ means a data collection method in which a surveyor walks a predetermined route (transect) in order to gather field data on pollinator species;
- (12) ‘observation period’ means the period of the year which corresponds to the flying season of the large majority of the pollinator species;

²⁰ <https://ec.europa.eu/eurostat/web/lucas/database/primary-data>

²¹ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. (OJ L 206, 22.7.1992, p. 7-50, ELI: <http://data.europa.eu/eli/dir/1992/43/2013-07-01>).

- (13) ‘light trap’ means a device which attracts pollinator species during the night-time by using light and captures them in a container;
- (14) ‘assessment period’ means the time period over which progress to the target referred to in Article 10(1) of Regulation (EU) 2024/1991 is assessed;
- (15) ‘alien species’ means alien species as defined in Article 3(1) of Regulation (EU) No 1143/2014;

Article 2

Target species

Member States shall collect data on the abundance and diversity of pollinator species in the following taxonomic groups:

- (a) bees
- (b) hoverflies
- (c) butterflies
- (d) moths

Article 3

Monitoring sites

1. A site for data collection (‘monitoring site’) shall be a 2 km-by-2 km square centred on a point of the LUCAS master grid.
2. By way of derogation from paragraph 1, Member States may use pre-established monitoring sites, insofar as those sites were selected in accordance with the requirements set out in paragraphs 4, 5 and 6.
3. Member States shall collect data on the abundance and diversity of pollinator species on the minimum number of monitoring sites set out in Annex I.
4. Member States shall select the monitoring sites by applying stratified random sampling. The stratification shall be by biogeographical region and by the following ecosystem types:
 - (a) agricultural ecosystems
 - (b) forest ecosystems
 - (c) other ecosystems

In addition to the stratification referred to in the first subparagraph, Member States may apply stratification by NUTS regions, classes of altitude, protection status or more refined categories of land use or land cover.

The number of sites in each stratum shall be proportional to the geographical share of that stratum in the terrestrial territory of a given Member State.

5. The procedure for stratified random sampling of sites shall ensure representativeness across the national territory.

The distances between the monitoring sites shall be at least:

- (a) 10 km for Member States with a terrestrial territory above 75 000 km²;

- (b) 5 km for Member States with a terrestrial territory between 20 000 km² and 75 000 km²;
- (c) 1 km for Member States with a terrestrial territory between 1 000 km² and 20 000 km².

There shall be no minimum distance between the monitoring sites for Member States with a terrestrial territory below 1 000 km².

6. When applying the stratified random sampling of monitoring sites, Member States may exclude a monitoring site if it meets at least one of the following exclusion criteria:

- (a) more than 30 % of the monitoring site is without terrestrial vegetation;
- (b) the monitoring site is partially or fully located in urban centres, urban clusters or peri-urban areas;
- (c) at least 30 % of the monitoring site is inaccessible due to the presence of public infrastructure or because the monitoring site is located in a public area with restricted access, such as a military zone, border zone or hunting zone;
- (d) at least 30 % of the monitoring site is inaccessible because the monitoring site is located in a private area which is a border zone or hunting zone;
- (e) the monitoring site is situated at a latitude above 65°N;
- (f) data collection at the monitoring site is hindered for at least one of the following reasons:
 - (i) the monitoring site is far away from the nearest road accessible with motor vehicles (more than 2 km), or it is separated from the road by significant physical or natural obstacles, making regular access difficult;
 - (ii) the monitoring site is located on an island smaller than 50 km² or it can only be reached by a boat trip of more than two hours from a port with a regular ferry service;
 - (iii) at least 30 % of the monitoring site has a slope of more than 20 degrees;
- (g) the monitoring site cannot be attributed to one of the strata referred to in paragraph 4

7. Member States shall draw up a list of the monitoring sites selected in accordance with paragraphs 4, 5 and 6 within their territory ('list of monitoring sites').

The list of monitoring sites shall not be changed in the course of an assessment period.

8. By way of derogation from paragraph 7, second subparagraph, a site on the list of monitoring sites may be replaced at any time if it can be concluded that it fulfils at least one of the exclusion criteria set out in paragraph 6. Monitoring sites that are excluded from the list shall be replaced by applying stratified random sampling as referred to in paragraphs 4, 5 and 6.

9. Member States shall inform the Commission and the European Environment Agency of the list of monitoring sites, and any change to it, without delay. The European Environment Agency shall make the list publicly available.

Article 4

Observation period

Member States shall define, for each site, the observation period during which the data collection in accordance with Articles 5 and 6 shall take place every year. The observation period shall not be changed in the course of an assessment period.

Article 5

Data collection protocol for bees, hoverflies, butterflies and day-active moths

1. During the observation period set out in accordance with Article 4, Member States shall collect data on bees, hoverflies, butterflies and day-active moths on each monitoring site by undertaking transect walks.
2. Transect walks shall be undertaken separately for:
 - (a) bees;
 - (b) hoverflies;
 - (c) butterflies and day-active moths.
3. The transect walks shall be carried out at the same monitoring site once a month during the observation period, with a minimum time interval of three weeks.
4. By way of derogation from paragraph 3, where the environmental conditions referred to in paragraph 7 are not met over an extended period of time which prevents the execution of the transect walks once per month, the transect walks may be carried out less frequently than once per month.
5. By way of derogation from paragraph 3, Member States may carry out transect walks at higher frequency at monitoring sites where the observation period is shorter than six months. In this case, the minimum time interval shall be less than three weeks.
6. For each transect walk, the following environmental parameters shall be recorded:
 - (a) temperature (in °C);
 - (b) cloud cover (in oktas);
 - (c) wind speed (in m/s);
 - (d) fog (presence/absence);
 - (e) precipitation (presence/absence);
 - (f) start time (hh:mm);
 - (g) any other relevant parameters that may affect the data collection.
7. Transect walks shall be undertaken under environmental conditions during which the species referred to in paragraph 1 are active at the adult stage of their lifecycle. For this purpose, for the environmental parameters listed in paragraph 6, points (a) to (f), Member States shall specify the conditions under which the transect walks are to be undertaken. Those conditions may be adapted to local circumstances and shall not be changed in the course of an assessment period.
8. The length of each transect walk shall be 1 km.
9. The same transect trajectory shall be used for bees, hoverflies, butterflies and day-active moths at each monitoring site. The transect trajectory shall be fully positioned

within the boundaries of the monitoring site. The transect trajectory may be continuous or split in parts. It shall be geo-referenced and mapped before the data collection starts. Each part of the transect trajectory shall be attributed to one of the ecosystem types referred to in Article 3(4), first subparagraph. The transect trajectory on each monitoring site shall not be changed unless it becomes partly or fully inaccessible due to force majeure.

10. The transect shall be walked in a forward direction at constant speed for a total effective observation time of 60 minutes. The observation time shall not include the time needed for catching, handling, identifying or recording of specimens.
11. Data shall be collected within the following delineated three-dimensional observation space around the person carrying out the transect walk ('the surveyor'):
 - (a) for bees and hoverflies: 1.5 m to each side of the surveyor, 1.5 m ahead of the surveyor, and 1.5 m above the surveyor;
 - (b) for butterflies and day-active moths: 2.5 m to each side of the surveyor, 5 m ahead of the surveyor, and 5 m above the surveyor.
12. Each recording of a specimen shall be attributed to one of the ecosystem types referred to in Article 3(4), first subparagraph.

Article 6

Data collection protocol for night-active moths

1. During the observation period set out in accordance with Article 4, Member States shall collect data on night-active moths at each monitoring site by using light traps.
2. The light traps shall be active for one night a month during the observation period, with a minimum time interval between active periods of a light trap at the same monitoring site of three weeks.
3. By way of derogation from paragraph 2, where the environmental conditions referred to in paragraph 6 are not met over an extended period of time which prevents the monthly placing of light traps, the light traps may be placed less frequently than once a month.
4. By way of derogation from paragraph 2, the light traps may be placed more frequently than once a month at monitoring sites where the observation period is shorter than six months. In this case, the minimum time interval shall be less than three weeks.
5. During the active period of each light trap, the following environmental parameters shall be recorded:
 - (a) temperature (in °C);
 - (b) cloud cover (in oktas);
 - (c) wind speed (in m/s);
 - (d) fog (presence/absence);
 - (e) precipitation (presence/absence);
 - (f) principal moon phase (new moon, first quarter, full moon, last quarter);
 - (g) any other relevant parameters that may affect the data collection.

6. Light traps shall be placed under environmental conditions during which the species referred to in paragraph 1 are active at the adult stage of their lifecycle. For this purpose, for the environmental parameters listed in paragraph 5, points (a) to (f), Member States shall specify the conditions under which the light traps are to be placed. Those conditions may be adapted to the circumstances at each site and shall not be changed in the course of an assessment period.
7. Two light traps shall be placed at each monitoring site, with a distance of at least 50 m between them. The light traps shall be placed at least 10 m from water bodies, and at least 50 m from artificial light sources. They shall be placed in such a manner that the top of the light source is between 30 cm and 1 m above ground level. A 1 m radius around each trap shall be free of obstructions that could block the light of the trap.
8. The position of the light traps shall be georeferenced and mapped for each monitoring site before data collection starts. Each light trap shall be attributed to one of the ecosystem types referred to in Article 3(4), first subparagraph. The location of each light trap shall not be changed in the course of an assessment period, unless it becomes inaccessible due to force majeure.
9. Member States shall use an identical light trap design and an identical light source type at all monitoring sites. The light trap design and the light source type shall not be changed in the course of an assessment period.

By way of derogation from the first subparagraph, a different light trap design and light source type may be used in latitudes higher than 60° N.

The light source of each light trap shall have a high output in the ultra-violet and blue light range (350-550 nm). The light sources shall be duly maintained with no substantial changes in light intensity or spectral composition over time.

Article 7

Data collection protocol for rare pollinator species

1. Member States shall carry out targeted monitoring of all bee, hoverfly and butterfly species that are assessed as critically endangered. For this purpose, Member State may use the EU Red List of Threatened Species²², or a national red list of species, or both.
2. By way of derogation from paragraph 1, if the number of species established in accordance with paragraph 1 is higher than 15, Member States may limit the number of species to be monitored to 15.
3. Member States shall draw up a list of species to be monitored in accordance with paragraphs 1 and 2 and notify it to the Commission. That list shall not be changed in the course of an assessment period.
4. Species on the list referred to in paragraph 3 shall be monitored by targeted field visits at least once per year at known locations of the species, establishing their presence or absence. Member States may discontinue the monitoring of a species in a given year once its presence has been established at least at one location.
5. All recordings of species referred to in paragraph 3 shall be geo-referenced.

²²

https://environment.ec.europa.eu/topics/nature-and-biodiversity/european-red-list-threatened-species_en

Article 8

Species identification

Member States shall identify observed or caught specimens of target species to the species level by using expert-based diagnostics, DNA-based methods, artificial intelligence, or other scientifically proven methods.

Article 9

Assessment of pollinator population trends

1. The trends in pollinator abundance and diversity shall be assessed based on the data collected by Member States in accordance with this Regulation.
2. To carry out the assessment referred to in paragraph 1, a common pollinator indicator shall be calculated for each Member State using the method set out in Annex II, and a pollinator species richness indicator shall be calculated for each Member State using the method set out in Annex III.
3. Alien species shall be excluded from the scope of the assessment.
4. The first assessment period shall start [OP: please insert the date = 12 months after the date of entry into force of this Regulation] and shall end in 2030. Thereafter, each subsequent assessment period shall last six years.

Article 10

Assessment of the effectiveness of restoration measures

For the purpose of assessing the effectiveness of the restoration measures in accordance with Article 10(3) of Regulation (EU) 2024/1991, the common pollinator indicator shall be calculated separately for each of the ecosystem types referred to in Article 3(4), first subparagraph.

Article 11

Entry into force

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 19.9.2025

For the Commission
The President
Ursula VON DER LEYEN