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[...] (2025) XXX draft

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

of XXX

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)

This draft has not been adopted or endorsed by the European Commission. Any views expressed are the preliminary views of the Commission services and may not in any circumstances be regarded as stating an official position of the Commission.

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 Act 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.

The Delegated Act 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 [COM/2023/35 final](#)

² [Regulation \(EU\) 2024/1991](#).

1.3. Scientific principles and methods underpinning the Delegated Act

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, the project brought together highly qualified experts, including in the areas of pollinator biology, biodiversity field survey 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 1st STING report from 2021⁵ and the 2nd STING report from 2024⁶, establishing the state-of-the-art groundwork for the monitoring method set out in this Delegated Act.

1.3.2. General approach

The Delegated Act 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.

The method establishes a robust indicator system to measure changes in pollinator populations: a common pollinator indicator for assessing trends in the diversity and abundance of common pollinator species, and a pollinator species richness indicator for assessing trends in the total number of pollinator species (common and rare).

The common pollinator indicator is composed of established metrics for assessing species abundance (the Generalised Abundance Index, GAI) and diversity (the Shannon-Weaver Diversity Index). Given that rare pollinator species will not be recorded at most of the monitoring sites, these indicators are not suitable for covering rare pollinator species. These will be addressed, jointly with common pollinator species, by counting the total number of pollinator species recorded annually in each Member State as a measure of species diversity.

To ensure adequate quantity and quality of data for the calculation of these indicators, the monitoring method establishes a scientifically robust and cost-effective approach for collecting data on the abundance and diversity of pollinator species.

The data collection approach and the assessment approach 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 sites and the data collection effort on 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

³ [Science and Technology for Pollinating Insects.](#)

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](#).

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 Act. 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 in some cases can even pose a threat. Member States may include alien pollinator species in the monitoring scope with a view to improve surveillance of the spread of such species. However, alien pollinator species are excluded from the assessment of the trends in the diversity and abundance of pollinators.

1.3.4. Species level 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 Act 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 objective. The method set out in the Delegated Act stipulates 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 national territory. Otherwise, bias in data collection process would be introduced, making the assessment based on such data dubious. Random sampling is a key principle to obtain a statistically robust monitoring method.

Stratified sampling of monitoring sites aims to ensure that major ecosystem types and biogeographical regions are properly represented in the selection process.

The minimum number of sites has been calculated through a robust scientific process based on literature review, analysis of synthetic and real-world monitoring data, statistical power analysis, and expert assessment. The modelling approach assessed the relation between the number of sampling sites, the statistical power to detect a certain level of change in the abundance of common pollinator species and the requirement to collect adequate number of observations for the calculation of abundance for at least 30% 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 the land cover heterogeneity.

This is why a reasonable number of sites (sample) is also needed in small-sized Member States. This is in line with the principles of statistical science. The major factor in determining the absolute size of a sample (i.e. the minimum number of sites to monitor) from a statistical population (i.e. the whole territory of a Member State) is the variance of the population rather than the relative size of the sample to the population. The species richness and land cover heterogeneity vary substantially across Member States.

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 flexibility to Member States to effectively position a 1 km transect or a light trap within a monitoring site, while ensuring the site selection is standardised. A well-established and widely used LUCAS grid was chosen to facilitate the stratified random sampling process by Member States. Information on land cover and land use is readily available for this grid.

Minimal distances between monitoring sites are set to ensure that these sites are spread out across the national territory.

The monitoring method provides a list of optional exclusion criteria in the stratified random sampling process which Member States may use to exclude locations that might be too burdensome or impossible for monitoring (remote or inaccessible sites).

It is fundamental that the monitoring sites are not changed in the course of an assessment period to avoid any potential bias. The monitoring method sets clear rules for substitution of a selected site in case the site subsequently becomes inaccessible.

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 data for a standardised trend analysis. To avoid sampling bias, a key requirement is to standardise the data collection protocol in terms of space dimension (location and length of the transect trajectory, and observation space around a surveyor) and time dimension (length 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.

For night-active moths, light traps are the most cost-effective method to collect data for a standardised trend analysis. As for transect walks, space (position of a light trap) and time (active period of a light trap) should be standardised in the protocol. To avoid sampling 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.

1.4. Simplification, burden reduction and cost-effectiveness

The monitoring method set out in the delegated act 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 bees, hoverflies, butterflies, and moths (excluding micro-moths). For these groups, the monitoring capacity already exists or could be built cost-effectively in the short-term. To further reduce burden on Member States, only larger species of moths are included as their identification can be facilitated by image recognition and artificial intelligence.

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

The method differentiates the monitoring of common and rare pollinator species. Rare pollinator species are to be monitored by targeted field visits on known locations, which is more resource-efficient than covering rare species in the stratified random sampling regime put in place for common species. This methodological choice enables minimisation of the number of monitoring sites for common species. The number of sites for monitoring common species is the minimum necessary to enable adequate data collection on the abundance for only 30% of species. Limiting the number of rare species to be monitored also reduces the burden on Member States. Targeted monitoring is obligatory only for critically endangered species and Member States can limit that number to 15.

The Delegated Act provides a broad margin for Member States to define the number of sites, on which to implement the monitoring. It sets the minimum number of sites for each Member State, which 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. In addition, smart rules give flexibility to Member States to 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 Act.

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 Act

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 the implementation of 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 Act

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.](#)

The annual cost for the implementation of the monitoring method as set out in the Delegated Act was estimated at EUR 12.6 million (2024 prices) for the Union as a whole. This translates to a 29 to 33% 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 1st STING report and amounted to EUR 17.7 to EUR 18.9 million when adjusted for inflation (2024 prices).

The updated estimate includes the costs of investments into materials, the execution of field surveys (transects, 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 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 has been reduced (1820 compared to 1988 in the initial estimate).
- The addition of criteria that Member States may use to exclude remote or inaccessible locations from a random sample of sites.

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

- Including elements that were not accounted for in the initial estimate, such as overhead costs, costs for the storage of collected specimens and the costs for data entry, validation and site selection;
- Assuming a higher share of specimens that need to be identified in the laboratory compared to the initial estimate, particularly in the first three monitoring years and in the Mediterranean region due to its higher species diversity. This was not accounted for in the initial estimate;
- 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 Act 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

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

¹⁴ [Regulation \(EU\) 2021/2115](#).

pollinator indicators. The pollinator indicators set out in this Delegated Act are appropriate measures for this purpose.

2. CONSULTATIONS PRIOR TO THE ADOPTION OF THE ACT

2.1. Consultation of Member States and stakeholders

Member States and stakeholders were consulted on the draft delegated act through the EU Biodiversity Platform, a Commission expert group, in the following sub-groups and meetings:

- Working Group on Pollinators: meetings of 20 November 2024, 16 December 2024, 19 February 2025 and 28 May 2025;
- Expert Group on the Nature Restoration Regulation: **meeting planned for 1 July 2025.**

2.2. Public feedback

[Public feedback is pending.]

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 the pollinator species to be monitored.

Article 3 lays down the monitoring sites.

Article 4 lays down the survey protocol for bees, hoverflies, butterflies and day-active moths.

Article 5 lays down the survey protocol for night-active moths.

Article 6 lays down the survey protocol for rare pollinator species.

Article 7 lays down the species identification.

Article 8 lays down the assessment of pollinator diversity and population trends.

Article 9 lays down the assessment of the effectiveness of restoration measures.

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

of **XXX**

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) 2022/869¹⁵, 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 the abundance and diversity of pollinator species every year 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. 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. However, rare pollinator species

¹⁵ OJ L 2024/1991, 29.7.2024, p. 1-93, <http://data.europa.eu/eli/reg/2024/1991/oj>.

should be monitored by 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 pollinator species by targeted field visits, efforts should be focused on the most threatened species at Union level and Member States should be allowed to restrict 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. This 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. 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-Weaver Diversity Index, 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 Council¹⁶, 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, and they actually constitute a threat to biodiversity.
- (13) Since the Shannon-Weaver 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 through a pollinator species richness indicator, i.e. an indicator that reflects the number of species, which combines the number of rare and common pollinator species recorded in a Member State.
- (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,

¹⁶ Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species (OJ L 317, 4.11.2014, p. 35, ELI: <http://data.europa.eu/eli/reg/2014/1143/oj><http://data.europa.eu/eli/reg/2014/1143/oj>).

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, Erebidae (including Lymantriinae), Euteliidae, Geometridae, Heterogynidae, Lasiocampidae, Limacodidae, Noctuidae, Nolidae, Notodontidae, Sesiidae, Sphingidae, Uraniidae, and Zygaenidae, provided they have a wingspan of 20 mm or more;
- (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) with a fixed origin at ETRS89-LAEA (52°N, 10°E)¹⁷;
- (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(c)(iii) of Directive 92/43/EEC¹⁸;
- (10) ‘other ecosystems’ means ecosystems other than agricultural ecosystems and forest ecosystems that are aggregated in one stratum;
- (11) ‘transect walk’ means a field survey method in which a surveyor walks a predetermined route (transect) in order to gather data on pollinator species;
- (12) ‘observation period’ means the time period in the flying season of the large majority of the pollinator species present in a Member State;
- (13) ‘light trap’ means a device which attracts pollinator species during the night-time by using light and captures them in a container;

¹⁷ <https://ec.europa.eu/eurostat/web/lucas/database/primary-data>

¹⁸ 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, ELI: <http://data.europa.eu/eli/dir/1992/43/oj>).

- (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 at the time of entry into force of this Regulation, insofar those sites were selected in accordance with the requirements set out in paragraphs 4 and 5.
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:
 - (e) agricultural ecosystems
 - (f) forest ecosystems
 - (g) 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 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:

- (h) 10 km for Member States with a terrestrial territory above 75 000 km²;
- (i) 5 km for Member States with a terrestrial territory between 20 000 km² and 75 000 km²;

- (j) 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 an area 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) the monitoring site is situated at a latitude above 65°N;
 - (e) 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 3 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;
 - (f) the monitoring site cannot be attributed to one of the strata referred to in paragraph 3.
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 if it can be concluded after the list has been communicated to the Commission and the European Environment Agency that it fulfils at least one of the exclusion criteria set out in paragraph 6. Monitoring sites that are no longer suitable 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

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

1. Member States shall collect data annually on bees, hoverflies, butterflies and day-active moths by undertaking transect walks on each monitoring site. Transect walks shall be undertaken separately for:
 - (g) bees;
 - (h) hoverflies;
 - (i) butterflies and day-active moths.
2. 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.
3. Member States shall define, for each site, the observation period, which shall not be changed in the course of an assessment period.
4. 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) time of the day;
 - (g) any other relevant parameters that may affect the data collection.
5. For the environmental parameters listed in paragraph 4 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.
6. The transect walks shall be carried out once a month during the observation period. The minimum time interval between transect walks at the same monitoring site shall be three weeks.
7. By way of derogation from paragraph 6, where the environmental conditions referred to in paragraph 2 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.
8. By way of derogation from paragraph 6, Member States may carry out transect walks at higher frequency at monitoring sites where the flying season of the species referred to in paragraph 1 is shorter than six months. In this case, the minimal time interval shall be less than three weeks.
9. The length of each transect walk shall be 1 km.
10. 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 for each monitoring site 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.

11. 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, managing, identifying or recording of specimens.
12. Data on species referred to in paragraph 1 shall be collected within the following delineated three-dimensional observation space around the person carrying out the transect walk ('the surveyor'):
 - (a) for bees: 1 m to each side of the surveyor, 1 m ahead of the surveyor, and 1 m above the surveyor;
 - (b) for hoverflies: 1.5 m to each side of the surveyor, 1.5 m ahead of the surveyor, and 1.5 m above the surveyor;
 - (c) 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.
13. Each recording of a specimen shall be attributed to one of the ecosystem types referred to in Article 3(3), first subparagraph.

Article 5

Data collection protocol for night-active moths

1. Member States shall collect data annually on night-active moths at each monitoring site by using light traps during the observation period.
2. For the active period of each light trap, the following environmental parameters shall be recorded:
 - (d) temperature (in °C);
 - (e) cloud cover (in oktas);
 - (f) wind speed (in m/s);
 - (g) fog (presence/absence);
 - (h) precipitation (presence/absence);
 - (i) principal moon phase (new moon, first quarter, full moon, last quarter);
 - (j) any other relevant parameters that may affect the data collection.
3. For the environmental parameters listed in paragraph 2 points (a) to (f), Member States shall specify the conditions under which the light traps must 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.
4. The light traps shall be active for one night a month during the observation period. The minimum time interval between active periods of a light trap at the same monitoring site shall be three weeks.
5. By way of derogation from the paragraph 4, where prolonged adverse conditions with regard to the environmental parameters referred to in paragraph 2 prevent the monthly placing of light traps, the light traps may be placed less frequently than once a month.
6. By way of derogation from paragraph 4, the light traps may be active for more than one night a month at monitoring sites where the flying season of the night-active

moths is shorter than six months. In this case, the minimal time interval shall be less than three weeks.

7. Two light traps shall be placed at each monitoring site, with at least a 50 m distance 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, 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 6

Survey protocol for rare pollinator species

1. Member States shall carry out targeted monitoring of all pollinator species that are assessed as critically endangered. For this purpose, Member State may use the EU Red List of Threatened Species¹⁹, or a national red list of species, or both.
2. By way of derogation from paragraph 1, Member States may limit the number of species to be monitored to a minimum of 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 referred to in paragraph 3 shall be monitored by targeted field visits at least once per year at each known location of the species, establishing their presence or absence.
5. All recordings of species referred to in paragraph 3 shall be geo-referenced.

Article 7

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.

¹⁹ https://environment.ec.europa.eu/topics/nature-and-biodiversity/european-red-list-threatened-species_en

Article 8

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 this assessment, 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 starts [OJ: please insert the date = 12 months after the date of entry into force of this Regulation] and ends in 2030. Thereafter, each subsequent assessment period lasts six years.

Article 9

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, and sufficient data collection shall be carried out in each ecosystem type.

Article 10

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,

For the Commission
The President
[\[...\]](#)