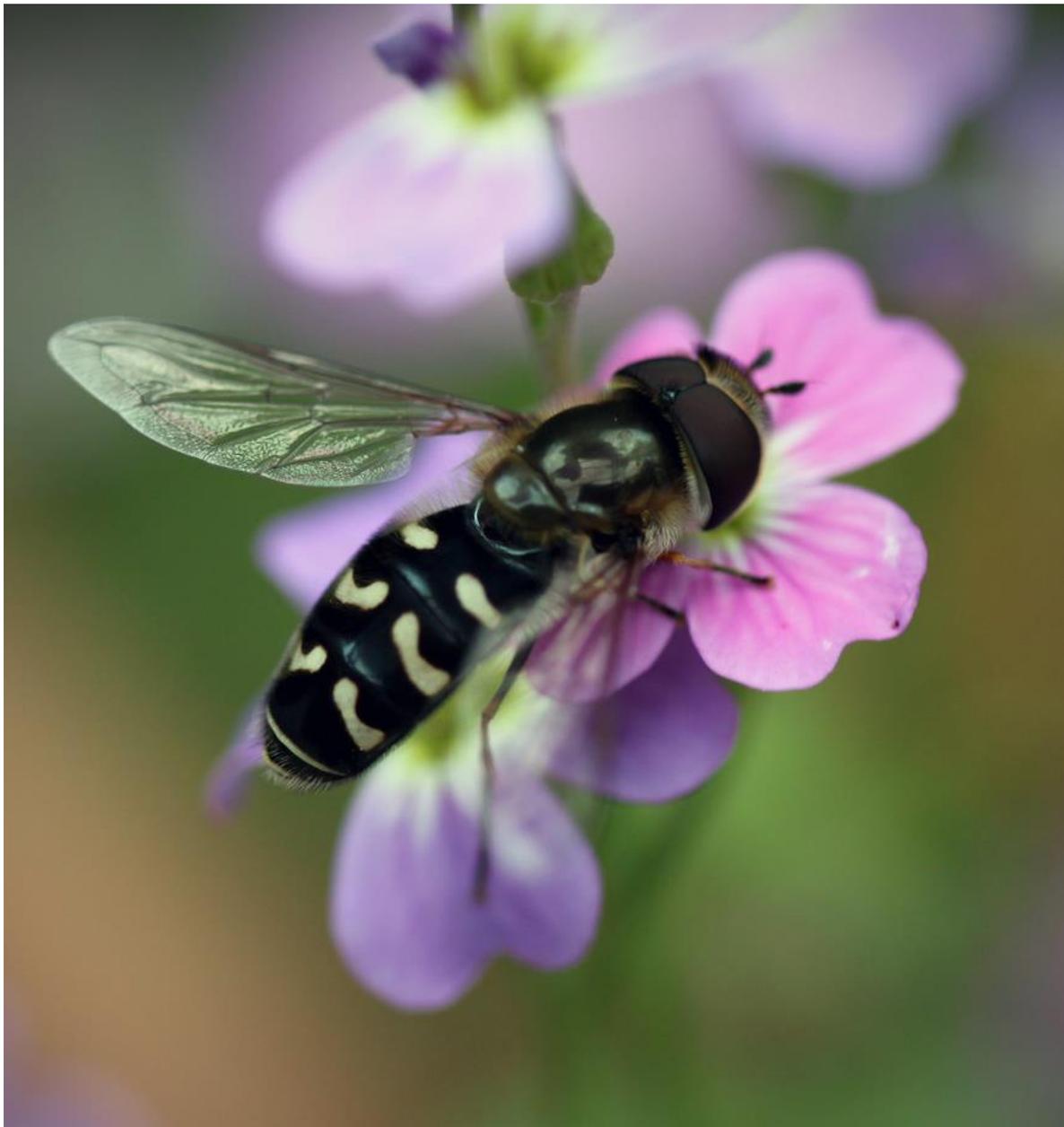




Conservation measures that benefit pollinators applied under the Nature Directives in Natura 2000 sites

WORKSHOP REPORT



November 13th, 2019

DG Environment, Brussels

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1. Introduction

On the 1st June 2018, the European Commission adopted a Communication on the EU Initiative on Pollinators COM(2018)395, which specifically identifies the Nature Directives as key instruments for promoting conservation measures beneficial for pollinators. Improving the implementation of the Habitats Directive (Council Directive 92/43/EEC) in particular is of major significance in addressing the loss and degradation of pollinator habitats. Action 4 of the Initiative, specifically Sub-Action 4B, states that *'the Commission will, in cooperation with Member States, identify conservation measures and management approaches to optimize benefits for endangered pollinators and their habitats, including in the frame of the Natura 2000 biogeographic process and through a dedicated workshop'*.

This report summarises the main outcomes of a 1-day workshop on 'conservation measures that benefit pollinators applied under the Nature Directives in Natura 2000 sites' that took place at the Directorate-General for Environment (DG ENV) in Brussels on 13 November 2019 in the context of Sub-Action 4B of the Initiative. This workshop was organised by the International Union for Conservation of Nature and Natural Resources (IUCN) on behalf of the European Commission.

1.1 Goals

This workshop aimed to identify the best management measures and approaches being implemented for pollinator conservation across Natura 2000 sites, thereby increasing the profile of pollinators' actions in the management of the Natura 2000 network.

The discussion focused on the habitats (e.g. through habitat action plans) and sites area coverage (1/5 of EU land, including forests and agricultural lands). Experts were asked to take stock of the knowledge on pollinator conservation measures that could apply to Natura 2000 areas, identify gaps thereof and highlight good conservation examples, all in the context of proper habitat/site management. The discussion aimed to use examples of pollinator species that are dependent on particular habitats (Annex I habitats of species), and the elements of those habitats that are specifically dependent on pollinators to achieve a good conservation status. In addition, participants were steered to examine the relative value of landscape features such as mass flowering crops or hedgerows for promoting pollinators. They discussed the feasibility of those actions and how these can be promoted through guidance and communication by Member States (MS), NGO's and experts. The workshop aimed to build new fora for discussions, although some had already been initiated in previous workshops, such as the conferences on results-based agri-environment schemes¹ and events within the Natura 2000 biogeographic process².

1.2 General structure of the workshop

To ensure efficient information gathering, the workshop was 'by invitation only': invitations were sent only to a limited number of experts on pollinator species, stakeholders (see Appendix I for invitations sent to prospective participants) and members of the Expert Group of the Nature Directives (NADEG). Specifically, the target audience included experts on pollinators (bees, butterflies, hoverflies, moths), non-governmental organisations, Natura 2000 site managers, competent authorities, beekeepers and farmers representatives and their advisors.

¹ https://ec.europa.eu/environment/nature/rbaps/index_en.htm

² https://ec.europa.eu/environment/nature/natura2000/seminars_en.htm

In total, a balanced mix of 36 persons (15 women, 21 men) participated in the workshop (see Appendix II for full participants list, including EC representatives and the project team).

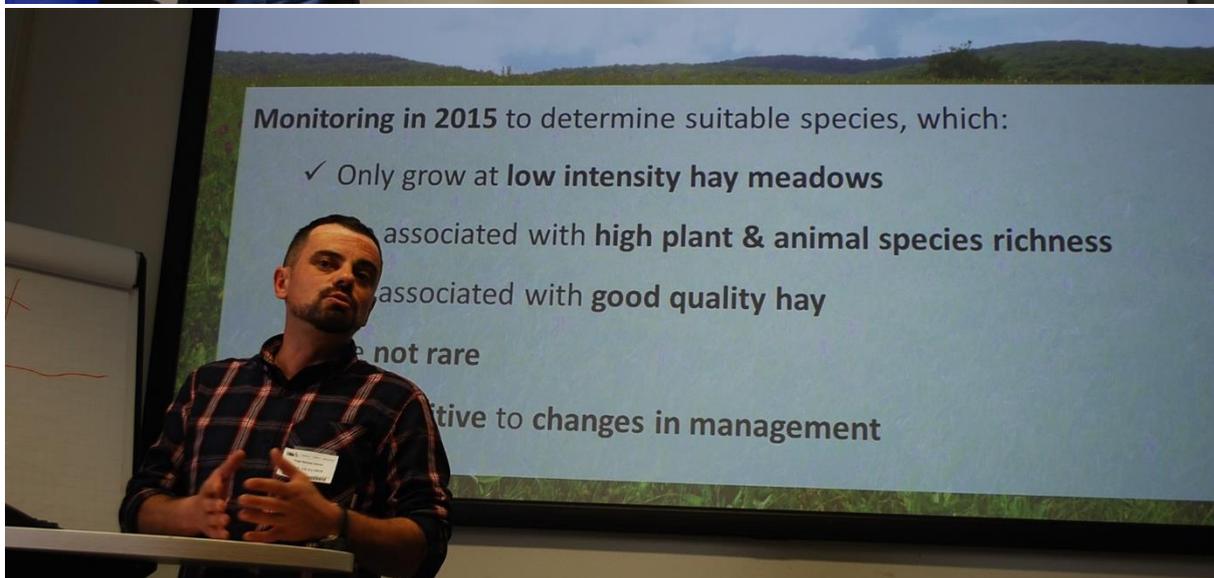
The workshop format consisted of a series of presentations in the morning³, with question and answer sessions, and an afternoon dedicated to breakout group discussions (see Appendix III for the full agenda). The morning presentations were designed to ensure participants would be introduced to a wide range of topics associated with the main theme of the workshop. These included an overview of the EU Pollinators Initiative, pollinator trends in Natura 2000, case studies of pollinator conservation management in Member States and the role of farmers and site managers in pollinator conservation. A key topic was the presentation of the two recently completed EU Habitat Action Plans for pollinator-relevant habitats '6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*)' (* important orchid sites) and '4030 European dry heaths'. These plans have been developed as part of the EU Action Plan for nature, people and the economy in response to the Nature Directives fitness check.

In order to encourage discussion and harvest as much information as possible from participants, particularly from those applying conservation measures for pollinators on the ground, the afternoon portion of the workshop consisted of three thematic breakout sessions, on the following topics 1) **current knowledge base** of pollinator conservation science; 2) **available tools and initiatives that promote the conservation of pollinators** being implemented currently in Natura 2000 sites; and 3) **connectivity within and between Natura 2000 sites**.

Participants were split into three groups of 12 persons each, mixing stakeholders and at least one DG ENV representative, a moderator and a rapporteur. Each group spent 40 minutes in each of the three thematic breakout session rooms, with all participants participating in the discussions held in all 3 sessions. The moderators guided the discussions based on several guiding questions prepared in advance (see Sections 2.2, 2.3 and 2.4 below) and the main topics discussed were recorded on flipcharts. At the end of the breakout sessions (amounting to a total of 2 hours), groups were invited to reassemble and moderators presented brief summaries of the discussions that occurred during their respective breakout sessions. Participants were then encouraged to raise any final points that they felt did not receive enough attention during the presentations and breakout sessions. In addition, participants were encouraged to complete a questionnaire to provide feedback of the workshop (see Section 3.1).

The following sections present the main outcomes of the discussions and feedback from the participants.

³ <https://app.box.com/s/61gpjalakmh3rcot7z4mb6p2eu5uek3a>



Speaker presentations: [top] Vujadin Kovacevic (DG ENV, European Commission) presenting an overview of the EU Pollinators Initiative, [middle] Răzvan Popa (Fundatia Adept, Romania) presenting the role of Results-based Payment Schemes in Romania and [bottom] Vanessa Sánchez (Fundación Global Nature, Spain) presenting her work on conservation measures in Spanish agrarian landscapes.

2. Main outcomes of discussions

2.1 Speaker Presentations

In his introductory remarks, **Micheal O'Briain of DG Environment** noted the opportune timing of the workshop, as the Commission is currently reflecting on the objectives of the Green Deal. He pointed out that the Natura 2000 network should deliver for all threatened species, not just the ones listed in the annexes of the Nature Directives⁴. When the directives were drafted, there was an understanding that pollinators were not listed in the annexes as they were closely associated with the Annex I habitat types, so that if the habitats are in favourable conservation status then pollinator species will also be protected. This is why it is important to identify how the Nature directives factures the protection of pollinators. He also noted that pollinator conservation is very much capable of delivering co-benefits to society.

Vujadin Kovacevic of DG Environment highlighted that under the EU Pollinators Initiative, a series of tools and guidance materials are being produced that will be useful for pollinator conservation in the Natura 2000 network. These include a guidance for local authorities, cities and spatial planners, guidance on invasive alien species and pollinators, guidance aimed at various private sectors and beekeepers, blueprints for pollinator strategies at national and regional level, and information on pollinators and the CAP and the Sustainable Use of Pesticides Directive.

Natasha de Manicor presented her research at the **University of Lille** on plant-pollinator network diversity in calcareous grasslands highlighting the importance of maintaining ecological function and common species as the main management recommendations. **Evelyn Underwood of IEEP** discussed elements relevant for pollinators of the nearly completed habitat action plans for calcareous grasslands and European dry heaths, namely the pattern of different management activities and well-identified, SMART conservation objectives. **Irma Wynhoff** from **Butterfly Conservation Europe** presented current butterfly population trends inside and outside Natura 2000 sites, reinforcing the observation of equally severe declines in grasslands inside and outside these areas, despite species richness being greater inside Natura 2000, which can benefit particularly threatened and Near Threatened species.

Following a short break, **Sébastien Husse** from the **Parc Naturel Régional de Lorraine** in France discussed his experience motivating Natura 2000 site managers to implement pollinator friendly practices, emphasising the need to promote grasslands with the highest agro-ecological value and the need to develop indicators to evaluate said ecological value. **Răzvan Popa** of **Fundatia Adept** in Romania presented a case study on the role of result-based payment schemes for promoting pollinator conservation in Natura 2000 sites. **Vanessa Sánchez** of the **Fundación Global Nature** in Spain introduced participants to a LIFE-project that developed a decision-support tool at the farm-level, involving the private sector to assess the success of conservation measures imposed in agrarian landscapes to benefit pollinators. Finally, **Anne Erland Eskildsen** of the **Danish Agriculture & Food Council** (SEGES) presented their campaign of working closely with local farmers to design tailored management plans that benefit pollinators and include a scoring system that track the impact of landscape elements and farm practices on pollinators (for example, variation and abundance of wild flowers and density of grazing animals).

Presentations were followed by Q&A sessions, during which the topic was brought up of agricultural abandonment often leading to negative effects on the survival of wild pollinators. Furthermore, the second pillar of the CAP was identified as being critical to conserve pollinators in Natura 2000 sites, but more subsidies for species monitoring and low-intensity farming were required. Finally,

⁴ In line with the Habitats Directive Article 2, which states '*The aim of this Directive shall be to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies.*'

participants also discussed with speakers the fact that many site management plans are created each year in Europe, but in practice, they often do not function properly due to a lack of adequate communication between all stakeholders involved.

2.2 Breakout Session 1: The Knowledge Base

Guiding Questions – what does current conservation science tell us about which and how common and wild pollinators are protected in the Natura 2000 network? What information/data are we missing? What does science tell us about effectiveness of conservation measures for pollinators on Natura 2000 sites?

The thematic breakout session on current knowledge was moderated by **Dr. Deepa Senapathi** of the **University of Reading** (UK), and the rapporteur was **Philip Rekret (IUCN)**. Discussions in Session 1 primarily surrounded current research needs and gaps in understanding of pollinator ecology and conservation best practices. Participants highlighted the **erosion and fragmentation of taxonomic experts**, the **lack of information on pollinator species trends and ecology**, and **long-term management programmes** as areas that require significantly greater attention.

Erosion and fragmentation of taxonomic expertise

A considerable proportion of pollinator species data, particularly in terms of distribution, has historically been collected by hobby-expert taxonomists. For arguably a number of different reasons, interest in this field has been decreasing in recent years. Hobby-taxonomists contribute greatly to pollinator research as they are often highly-skilled at identification, require no financial incentives, and often know their local population of pollinators sufficiently to provide basic population trend data.

Another knowledge gap noted by participants is the variability and fragmentation of current expert knowledge among taxa. For example, there is significant variability of data between butterflies and hoverflies as much more attention is commonly given to butterflies. There is also fragmentation of knowledge in that, for example, botanists are not entomologists and vice-versa yet both are equally important to study pollinator dynamics. Greater communication among pollinator experts across various species and related experts, such as botanists, is required to promote sufficient knowledge exchange.

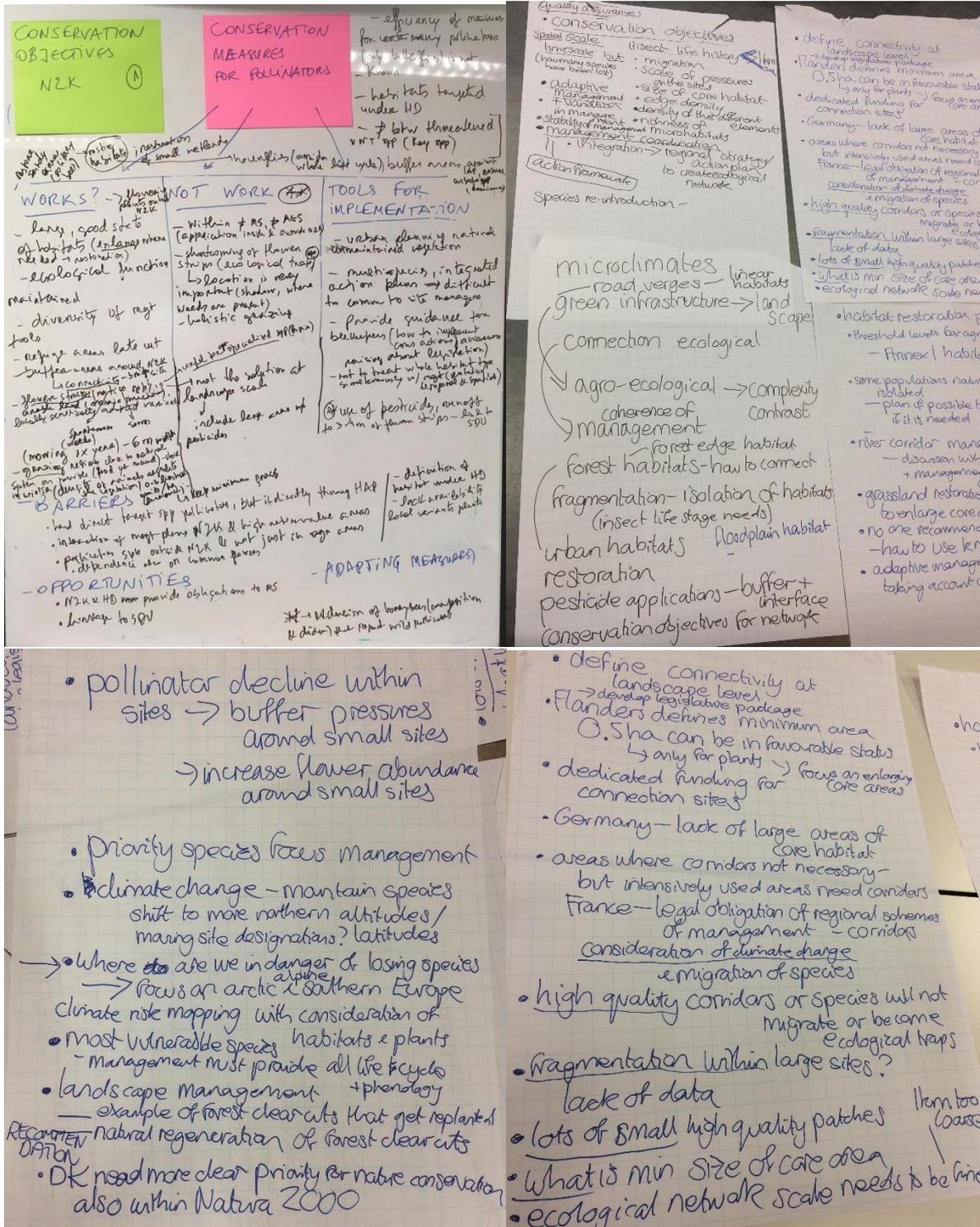
Poor information on species trends and ecology and long-term monitoring

Although basic population size and distribution estimates exist for many pollinator species in Europe, there is a significant lack of data on species trends and ecology. More efforts need to be made to not only determine population size, but more importantly, population trends, as these provide a much clearer picture of the status of pollinators, thereby informing conservation planning with more precision. One solution suggested by participants would be to coordinate IUCN Red List assessments more regularly, both regionally and nationally. Another solution suggested by participants would be to increase the number of long-term monitoring projects, both prior to and following management measures.

Natura 2000 Management plans

Similarly, the importance of understanding the ecology of pollinator species and assemblages is often under-emphasized when designing management plans. For example, one participant noted that recent work in Serbia found that prime hoverfly and prime butterfly habitats only overlap by approximately 30%, whereas there is much greater overlap of prime hoverfly and prime bird habitats (approx. 80%). This implies that ecology and population dynamics should be of greater focus when management plans are designed, with complex habitats being considered as a single management

unit, avoiding species-specific conservation measures.



Flipcharts: Selection of some of the flipcharts used by moderators and rapporteurs in each breakout session to record the main topics discussed.

One final issue participants noted was the fact that management plans designed for sites within the Natura 2000 network, which are often fragmented, do not consider the influence of unprotected areas on conservation efforts. Participants argued that even if a particular management plan is focused on implementing measures inside a Natura 2000 site, it must take into account the fragmented areas of

unprotected pollinator habitat. What effect will they have on pollinator population dynamics inside the protected areas? How will unprotected areas respond in turn to conservation actions inside Natura 2000 sites? These are currently unaddressed questions that could raise the profile of conservation actions undertaken within Natura 2000 with potential benefits for pollinators.

2.3 Breakout Session 2: Natura 2000 Management Measures that Benefit Pollinators

Guiding Questions – what are good management practices and tools for pollinators in N2K sites? How do we measure their effectiveness? How can they be financed? Is there anything (in terms of restoration & management) that could be done better compared to what is being done already (adapting measures)? What are the barriers and the opportunities of the network to promote pollinator conservation? What are the pressures? What measures can be implemented on the ground, via for example management plans with pollinators targets, that include different stakeholders (farmers, etc)? What can be the role played by the biogeographical process?

The second thematic breakout session, on conservation measures currently being implemented, was moderated by Dr. Catarina Ferreira (IUCN) and the rapporteur was Barbara Romanelli (IUCN). Discussions in Session 2 primarily aimed at identifying management measures that benefit pollinators and are currently being implemented in Natura 2000 sites, thereby potentially reflecting the added value of the application of the Habitats Directive for pollinators. Participants highlighted the difficulties in **implementing management measures**, the varied effectiveness of **specific management techniques** and greater identification of **opportunities and barriers to pollinator conservation provided by the Habitats Directive** as areas that require significantly greater attention.

Difficulties in implementing management measures

The efficiency of conservation measures is well known only for certain species (like butterflies) but the majority of pollinator species are not included in the Nature Directives, and therefore it is difficult to know what sort of impact specific conservation strategies have on them. A potential solution would be to target priority habitats, thereby indirectly conserving them. One participant noted that managers must be cautious about this approach because, generally, pollinators often depend on common floral resources, not rare plants, whereas general habitat action plans are likely to focus on protecting rare plant species.

Some participants suggested that based on their experience, pollinator conservation strategies in Natura 2000 sites seem to be more successful when they can also be implemented in unprotected, fragmented areas outside of, but adjacent to, Natura 2000 sites, thereby increasing connectivity of managed areas. This is currently only possible in some Member States where environmental legislation supports agri-environmental schemes both inside and outside the Natura 2000 network.

Varied effectiveness of certain management techniques

Some participants noted that large habitats with good conservation status are the most important for pollinator conservation, and therefore, focus should be placed on enlarging small, well-conserved areas first, and restoring areas with poor conservation status second (creation of buffer areas). It was also stated that additional focus should be given to preserving ecological communities with pollinators as proxies of good ecological function.

Flower strips, commonly used to promote pollinators in agricultural areas, can have beneficial effects although their general effectiveness has been highly debated. Some participants argued that, to have any considerable effect, they should be at least 6 meters wide, have significant connectivity and contain only native flowers. It was understood among participants that flower strips, if implemented

correctly, can be useful tools to promote pollinators at local-level in and around crops, but have limited significant influence on native pollinator conservation at the landscape-scale and on species that are not specialised in agricultural habitats. On the other hand, they could function as ecological traps and so where they are located in farmlands is of critical importance. Furthermore, flower strips serve as habitat for many adult pollinators, but not for the entire life cycle. For example, they do not provide nesting habitats, which are critical for early life stages, and vary across taxa (juvenile solitary bees require sandy habitats and restoration of small wetlands is needed for earlier life stages of hoverflies).

Based on the experiences of some participants, Holistic Planned Grazing was suggested to be of potential value for representing a regime resembling natural systems as much as possible. This is done through the rotation of intensive grazing (regulating the density of animals) in various areas with regular alternations. However, the success of this technique in promoting pollinator and insect biodiversity remains in general questionable. Passive management was also mentioned as a valuable tool that could be further promoted in Natura 2000 sites and emphasised by the Habitats Directive.

Participants noted that some of the most successful management measures are often relatively obvious, with their implementation depending mostly on support. Techniques such as banning pesticides in Natura 2000 sites (or at the very least synthetic pesticides), increasing the ratio of organic vs. industrial farms and controlling invasive alien species (IAS) are not revolutionary measures, yet are often the most successful, and the Directive can provide a strong framework to trial some of these measures and test their effectiveness. Participants did however note that some very important factors still remain unknown, such as the relative efficiency of management measures across various pollinators. Regarding IAS, the participants referred the creation of buffer areas where good vegetation structure is kept that helps maintain healthy pollinator populations as a better management tool than pesticides to abate the impact of IAS.

It was suggested that the academic community should continue to find out more about population status and trends of rare pollinators, while farmers and site managers should be attempting more conservation measures aimed at common pollinators for which we have much more ecological information, and evaluating the success rate of those measures.

Opportunities and barriers to pollinator conservation provided by the Directive

Some tools for better implementation of the Habitats Directive were also discussed among participants, with emphasis on the potential of 1) urban planning as a tool to promote natural unmaintained vegetation beneficial for pollinators, 2) multi-species (integrated) action plans as tools to better communicate with site managers, 3) guidance for beekeepers, especially if they are co-designed, to map the availability of resources to determine the density of beehives with the goal of multiplying resources (nutritional diversity and lack of contaminants), and 4) maintaining spatial and temporal rotation of management techniques (i.e., not treating the whole habitat type simultaneously with same management technique). One important opportunity of the Habitats Directive for pollinators identified by the participants was that it creates environmental responsibilities for Member States to which they must abide by, increasing accountability.

Participants also noted potential conservation issues arising from the popularity of managed honeybee hives affecting native, wild bees. Domestic honeybees can greatly aid in pollination efforts, particularly of crops, but if deployed without discrimination can have a detrimental effect on native insect biodiversity. Therefore, many suggest that more research and resources need to be applied to determine the optimal, sustainable number of beehives in a particular area and create detailed protocols, guidances, or even legislation, for beekeepers. In this context, it was emphasised that the Habitats Directive could provide a strong backdrop against which these guidances could be developed. Participants acknowledged the important role of beekeepers in raising public awareness and education about the conservation of wild pollinators.

One major barrier identified by participants was the fact that the definition of habitat 'conservation status' under the Habitats Directive ('conservation status of a natural habitat means the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species within the territory referred to in Article 2') does not consider all interactions, namely plant-pollinator networks, which challenges the full realisation of its potential benefits.

2.4 Breakout Session 3: Connectivity between Natura 2000 sites

Guiding Questions – Landscape approaches, connectivity between N2K sites and areas outside of the network (GI, buffer zones, role of private sector?).

The third thematic breakout session, on connectivity within and between Natura 2000 sites, was moderated by Evelyn Underwood of IEEP and the rapporteur was Sophie Woolcock (IUCN). Discussions in Session 3 primarily surrounded how to improve connectivity within and between Natura 2000 sites for the purpose of benefiting pollinators. Participants highlighted the difficulty in **defining connectivity**, **management approaches** and the **challenge of climate change on pollinators** as areas that require significantly greater attention.

The debate in Session 3 followed the basic principles of managing an ecological network of protected areas⁵:

- Protecting what we have while improving its quality with **better management** (i.e. better management and improving conservation status of Natura 2000 sites);
- **Increasing the size** of wildlife sites (increasing habitat areas through restoration and recreation within Natura 2000 sites);
- Enhancing connection by creating new **wildlife corridors or stepping stones**;
- **Creating new sites**;
- Reducing pressure on wildlife by improving the wider environment including through **buffering wildlife sites**.

The debate also considered the fact that climate change will result in species migrating in space and time, and the ecological network needs to be able to accommodate these shifts.

Defining connectivity

Participants began by discussing the difficulty in defining connectivity of habitats for pollinators in general. How much core area is required by each species? Similarly, how many corridors are required? The functional group 'pollinators' actually includes seven broad taxonomic groups with very different species ecology and requirements, area requirements spanning from less than one hectare of high quality habitat to several squared kilometres of core habitat area. For example, some hoverfly species will spend their entire lives in one very small patch of vegetation, whereas many bee species forage over much larger areas. Furthermore, it is unclear to which extent species require connectivity. Some have naturally isolated populations that are not affected by fragmentation of habitat, whilst others are known to be under high pressure from fragmentation, such as butterfly metapopulations. Some participants suggested prioritizing connectivity measures in the more intensively used landscapes with high levels of agricultural and urban land use, but recognised that further research is needed.

⁵ Lawton, J.H., Brotherton, P.N.M., Brown, V.K., Elphick, C., Fitter, A.H., Forshaw, J., Haddow, R.W., Hilborne, S., Leafe, R.N., Mace, G.M., Southgate, M.P., Sutherland, W.J., Tew, T.E., Varley, J., & Wynne, G.R. (2010) Making Space for Nature: a review of England's wildlife sites and ecological network. Report to Defra. <http://archive.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf>

In order to properly evaluate the connectivity of Natura 2000 sites with respect to pollinators, ecological network planning must be done at a sufficiently fine scale, e.g. 1 km² grid is much too coarse for pollinator habitats. Many insect species tend to move at most 500 m during their life (but on a longer time scale we need to consider insect migrations, the scale of pressures on pollinators and impact of climate change).

Some species do not need large contiguous areas of core habitat – many small but high-quality habitat patches may be sufficient. However, it is important to identify and protect key habitat patches, or 'stepping stones' between Natura 2000 sites containing core habitats. In countries such as France, corridors are needed to connect protected areas. In Croatia on the other hand, 37% of land is under Natura 2000 governance, making it easier to connect otherwise isolated ecosystems.

Participants noted the need for greater communication across organisations and initiatives promoting pollinator conservation directly or indirectly. For example, mapping all the various initiatives in an area will significantly help managers prioritize areas of focus for conservation measures. It may be necessary to prioritise measures that improve connectivity in the more intensively used landscapes with high levels of agricultural and urban land use.

We often lack knowledge about which species have been lost from sites or remain only on a very small isolated fragment. The emerging experience of pollinator reintroductions needs to be shared so lessons can be learned.

Management approaches

A key principle of creating a connected ecological network is to ensure that the core habitat areas within the protected sites are managed optimally for priority species. A key requirement of pollinator good conservation status is sufficient high quality core habitat. However, little is known regarding the best way to restore additional habitat to expand core areas. Management approaches must take into account the requirements for small-scale diversity of microhabitats and habitat variation, ensuring all life cycle stages are in adequate conservation status.

In terms of management approaches and tools, site managers need to pay careful attention to the phenology of species and their associated plant species, and adapt management accordingly. The focus of management should be on species that are a high priority for conservation of the site, but needs to take into account any possible conflicts with the requirements of other species on the site.

Annex I (Habitats Directive) habitat conservation status assessments (in Natura 2000 sites and outside) mostly focus only on vegetation – this is not always sufficient to capture the status of pollinator populations. For example, in Flanders, habitat condition status can be assessed as being good on only 0.5 ha of habitat – but is this sufficient to maintain the associated insect species? We need more information and surveillance tools to assess the conservation status of animal species associated with Annex I habitats, including lists of which pollinator species closely linked to which Annex I habitats (e.g. Germany is about to publish such lists appropriate for German biogeographical regions).

When designing these management approaches, there should be some flexibility for farmers to adapt their management, using for example results-based schemes combined with on-farm advice. Furthermore, the stability of management measures must be ensured such that, for example, pollinator margins on arable land are not ploughed and removed every year. With respect to core habitats near arable lands, site managers should help buffer these sites to protect them from pressures from the surrounding land, particularly the impacts of fertilizers and pesticides.

Some participants also noted the importance of forest clearings for pollinators. In Sweden, forest clear cuts are colonised by pollinator species but stands are often rapidly replanted and become too shaded for pollinators. Allowing natural regeneration of trees after clear cutting would be a much more

pollinator friendly forest management practice.

The challenge of climate change

Although not many solutions were provided, participants highlighted the ever-increasing influence of climate change on pollinators. How can we prioritise the species most vulnerable to climate change? How can we improve climate risk mapping to take account of land use and presence of habitats and plant species that pollinators require? How will this research even be possible with an absence of detailed knowledge of the ecology and habitat requirements of all pollinator species? Many argue that pollinators may simply disperse to new locations to counter climate change, yet for that to be possible, there must be adequate connectivity. Similarly, and equally important, the plants they feed on and habitat types they nest in must be available in the new location they have arrived in. Corridors need to be of sufficiently high quality and the right kind of habitat as many insect species only move into new areas very slowly or not at all. The Habitats Directive might potentially contribute to buffer these impacts by providing alternative habitats, including some that are currently deemed unsuitable for pollinators.

2.5 Final group discussions and next steps

Following the breakout sessions, groups were invited to reassemble. Moderators from each breakout session presented a brief summary of the topics discussed in each of the sessions. Participants were then encouraged to raise any remaining questions or issues participants felt needed emphasizing. To this effect, participants highlighted the perennial problem of **knowledge sharing**.

A large quantity of detailed knowledge about insects exists (for example we have excellent data on hoverflies in the Mediterranean region), but is not accessible to the wider community. Similarly, there exists a significant amount of knowledge regarding successful long-term conservation that is to some extent not being capitalised by not being more accessible. There is considerable demand for a central online hub that does not just have taxonomic data, but also evidence of the efficacy of management measures and local examples of conservation management successes and failures. However, any knowledge hubs of this nature should not replace face-to-face focus groups and workshops, and workshops such as this one should continue to be organised regularly to exchange the knowledge and experiences of all stakeholders. The 'Conservation Evidence' platform is a useful source of scientifically robust evidence of the impacts of management measures on pollinators⁶.

As the workshop was nearing completion, participants and representatives of DG ENV noted some opportunities that exist that may help resolve some of the issues raised in the near future. First, an objective of the EU Pollinators Initiative is to create a web platform, potentially addressing the noted desire of participants for a **central online hub**. Action 3 of the Initiative, specifically Sub-Action 3A, states that '*The Commission will launch an online platform on pollinators to serve as a central data and information hub*', and this is currently underway under the current Service Contract.

Second, conservation management expertise is often geographically localised, and therefore, the **Natura 2000 Biogeographical Process** provides an opportunity for researchers and local stakeholders to efficiently exchange data and 'best practice' conservation measures relevant to their biogeographic region. Participants were encouraged to suggest and create a networking event which could continue the discussions in the context of a particular region.

The LIFE Programme almost exclusively supports large-scale, big-budget research projects in Europe. Some participants had noted the need for an increase in the number of LIFE projects, **including projects at much smaller scales and budgets**. Similar to the biogeographical process

⁶ <https://www.conservationevidence.com/data/index>

above, projects at this scale will harness on the knowledge that exists at smaller, local scales, and will promote greater collaboration with the local community, thereby increasing the probability of long-lasting conservation action. Representatives of DG ENV acknowledged this need, noting that this was discussed during a recent stakeholder consultation workshop on the new LIFE programme.

Others opportunities include the identification of measures which are specific to pollinators in the Prioritized Action Frameworks⁷ for Natura 2000 and the update of Natura 2000 managements plans to add a focus on conservation measures relevant for pollinators.



Group discussions: [top] *Lynn Dicks* (University of East Anglia, U.K.), [bottom] *Corrado Teofili* (Federparchi, Italy).

3. Feedback

Participants were provided with and asked to complete **Feedback Forms** immediately after the conclusion of the workshop (see Appendix IV for Feedback Form template). The majority of the total of 26 feedback forms collected were submitted on the day of the workshop, with some being submitted over the following month via email. Furthermore, participants were encouraged to complete

⁷ https://ec.europa.eu/environment/nature/natura2000/financing/index_en.htm

an online **post-workshop communications survey** to identify their preferred method of communication to ensure the discussions initiated at the workshop continue well into the future.

3.1 Feedback Forms

Q1. Structure of the workshop

The majority of participants felt that the amount of time allocated to presentations was well-planned (96% selected 'very good' or 'good'; Figure 1). Although not to the same extent, the majority of participants felt the time allocated to breakout sessions and the group discussion was also well-planned (breakout sessions – 91% selected 'very good' or 'good', group discussion – 70% selected 'very good' or 'good'). Finally, 76% of participants felt there was either 'good' or 'very good' relevance and diversity of invited speakers.

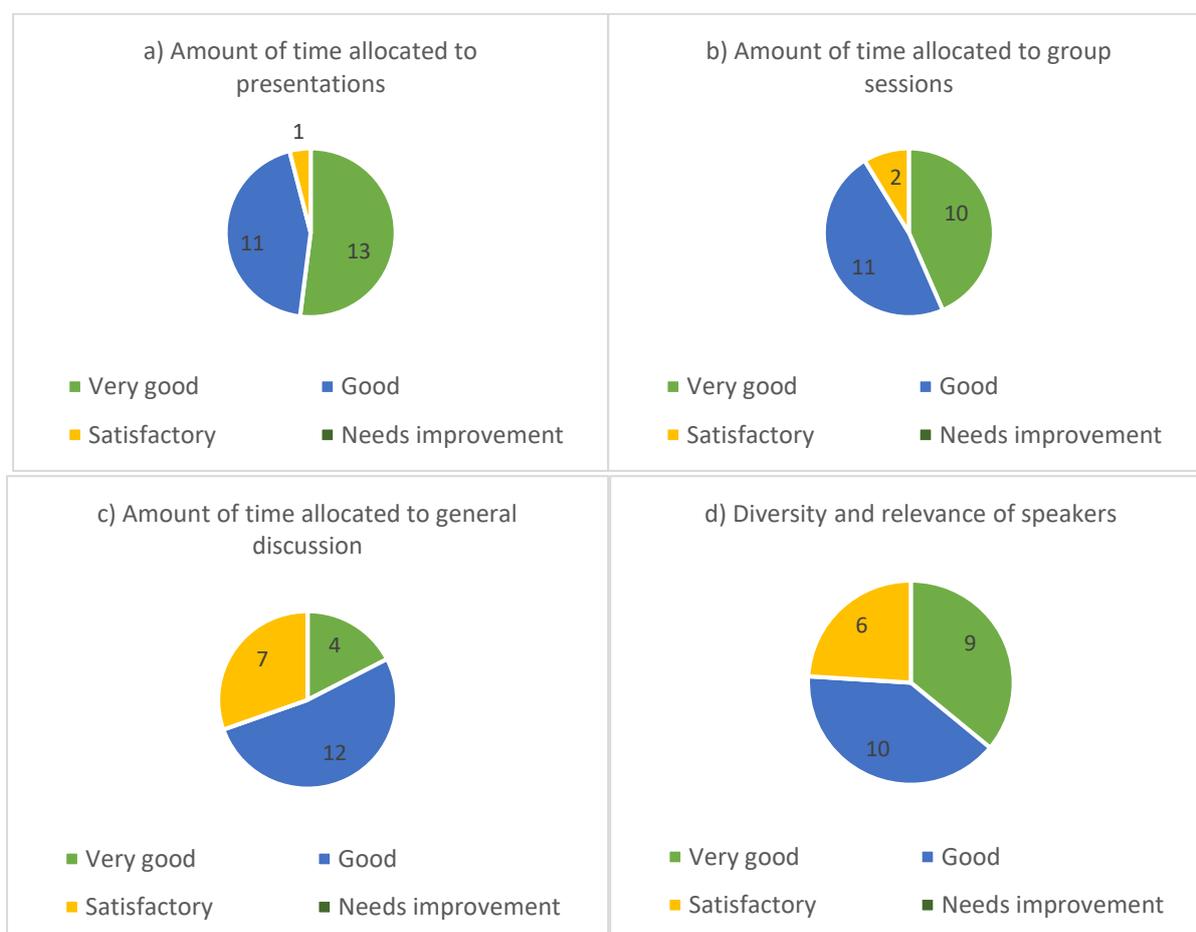


Figure 1: Feedback from participants on workshop format. Note: numbers in pie charts correspond to number of respondents.

Q2. Do you think the pollinator conservation measures discussed today can be effectively promoted and uptaken inside Natura 2000 sites? Please explain briefly.

Most participants felt that many of the pollinator conservation measures mentioned on the day of the workshop can be effectively promoted and uptaken in Natura 2000 sites. In particular, many participants highlighted the evidence of positive conservation outcomes as a result of **reductions in pesticides** and **regulated and managed grazing and mowing** of pollinator habitats that were

discussed during the workshop. However, some participants felt that for measures to be successful into the future, more research needs to be done on a habitat-by-habitat basis, an increased **integration of approaches** and **cooperation** between site managers and other stakeholders for which the Biogeographical process can play a critical role.

Q3. In your opinion, what is the greatest contribution the Natura 2000 network can make to the conservation of wild pollinators at a European scale? Please explain briefly.

In general, participants felt that the greatest contribution of the Natura 2000 network to pollinator conservation is the **connectivity of pollinator habitats**, particularly of core areas. Participants also noted the opportunity Natura 2000 sites provide to **define and implement EU Action Plans**, tailored to a regional scale. Finally, some participants highlighted the financial contribution of Natura 2000, such as **its capacity to support well-planned site management efforts** and provide **results-based payment schemes** for farmers implementing pollinator conservation measures.

Q4. In your opinion, what is the greatest challenge for effective uptake of pollinator conservation measures in the Natura 2000 network at a European scale? How can it be addressed? Please explain briefly.

Participants identified three primary challenges for the effective uptake of pollinator conservation measures in the Natura 2000 network. The first challenge is related to **monitoring techniques and data**. The lack of systemised and easily accessible species data is a major challenge to designing efficient management plans. Therefore, investments must be made into updating and standardising monitoring protocols and creating an open-access monitoring database for experts to easily exchange information. Second, **the lack of interest and awareness from society in general**, especially the agricultural sector, is a challenge that must be overcome in order to promote conservation efforts. We can begin to address this issue through targeted awareness campaigns. Another major challenge is the **lack of adequate control of fertilizer and pesticide input in Natura 2000 sites** which can of course benefit crop-yields while having detrimental effects on the surrounding ecosystem, pollinators in particular. This can only be addressed with increased education of farmers and the agricultural sector as a whole, and through changes to Pillar II of the next Common Agricultural Policy (CAP).

Q5. In your opinion, how can we improve the level of communication between all stakeholders involved in wild pollinator conservation across Europe (e.g. farmers, site managers, academics, NGOs, governments)?

In order to improve the level of communication between all stakeholders, the majority of participants argued for heavily increased **education and awareness campaigns** with simplified information specific to stakeholder groups, thereby ensuring all parties share similar views with respect to the importance of pollinator conservation. Furthermore, many participants felt that **more workshops** such as this one would greatly aid in communication between academics, NGOs and 'on-the-ground' actors, such as farmers and site managers. Similarly, participants highlighted the need for more integration between these different stakeholders outside of dedicated workshops, including via education and training webinars and **knowledge exchange hubs**, perhaps through an online portal.

Q6. Any other general comments?

In general, participants had many positive comments regarding the organisation and moderation of the workshop as a whole, and **wish to be invited to other similar workshops in the future**. Many recommended increasing the amount of time for breakout sessions and group discussions as they felt

these could have continued much longer, even insomuch as adding a second day specifically for breakout and group discussions.

3.2 Post-Workshop Communications Survey

Following the workshop, participants were asked to complete an online post-workshop communications survey, with 22 persons providing responses. Participants responded they would like to stay connected through multiple pathways, especially through more dedicated workshops and the Natura 2000 communication platform, at a frequency of once a year (Figure 2). They would prefer to share relevant information via Google Drive⁸ (Figure 3) and that this should be used to share more information on conservation measures and funding opportunities primarily (Figure 4). Similarly, participants identified these two topics as those they are most interested in receiving information on (Figure 5), through either a newsletter or dedicated email account (Figure 6). Many participants responded that they could contribute their knowledge or experiences regarding pollinator conservation measures and academic pollinator research to future exchanges of information, but few could provide input from the private sector, a likely reflection of the lower number of attendees from this stakeholder group (Figure 7). Finally, the majority of participants favoured receiving pollinator conservation information updates twice a year (Figure 8).

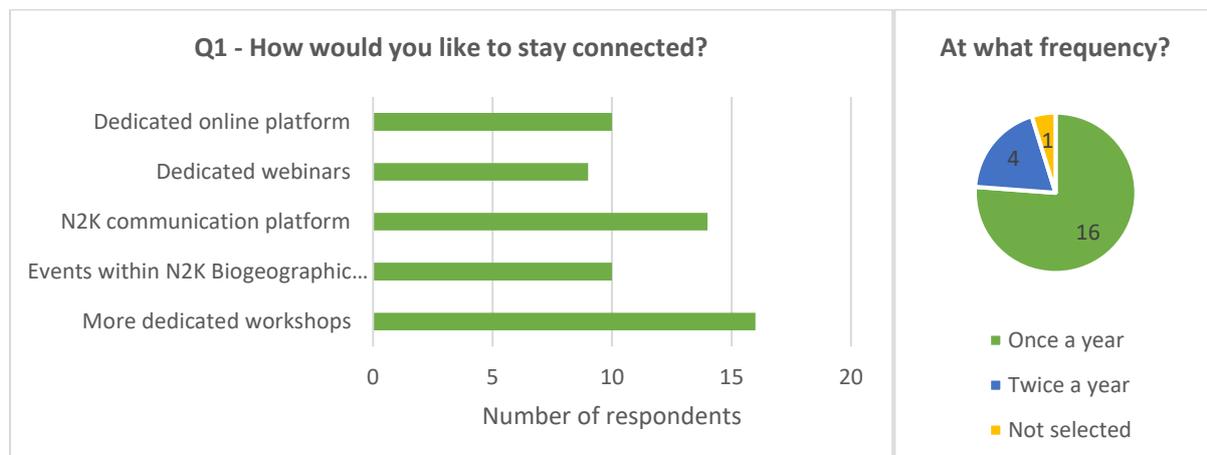


Figure 2: Participant responses to Question 1 “How would you like to stay connected to the other participants and continue the discussions started at the workshop? If you selected dedicated workshops and/or webinars, please indicate the preferred frequency.”

⁸ <https://www.google.com/drive/>

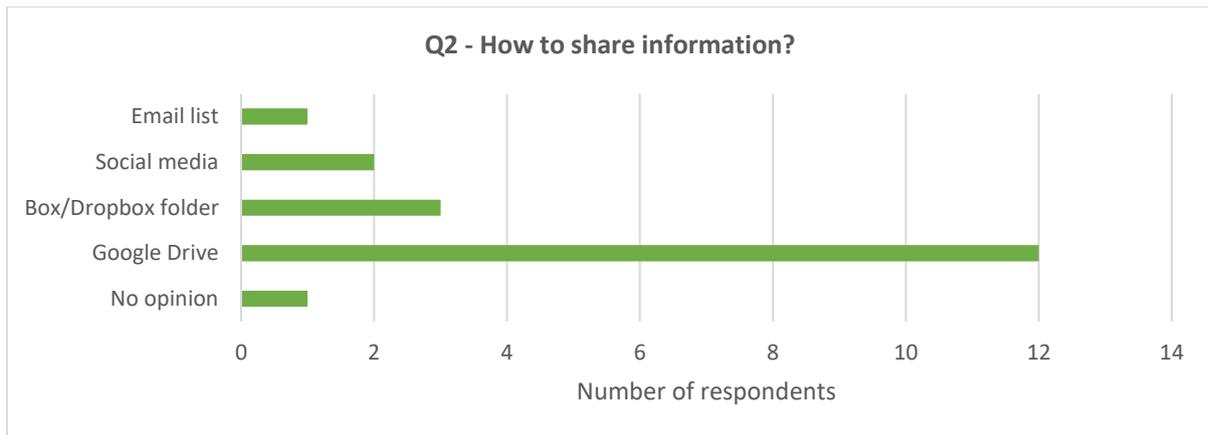


Figure 3: Participant responses to Question 2 “Which platform do you find most efficient for sharing relevant information?”.

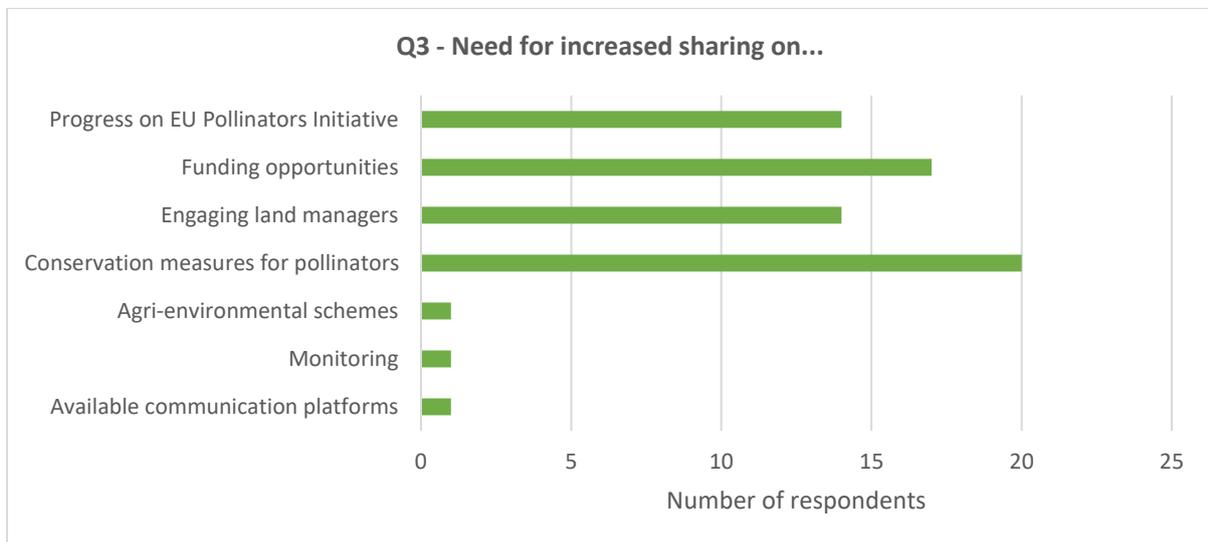


Figure 4: Participant responses to Question 3 “Within which areas do you identify the need for increased knowledge sharing?”.

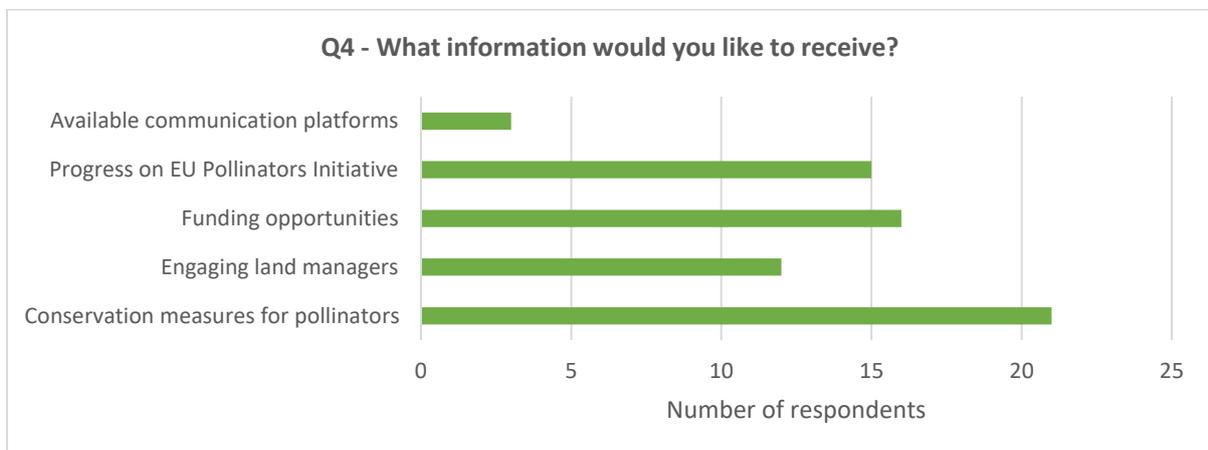


Figure 5: Participant responses to Question 4 “What information would you be interested in receiving?”.

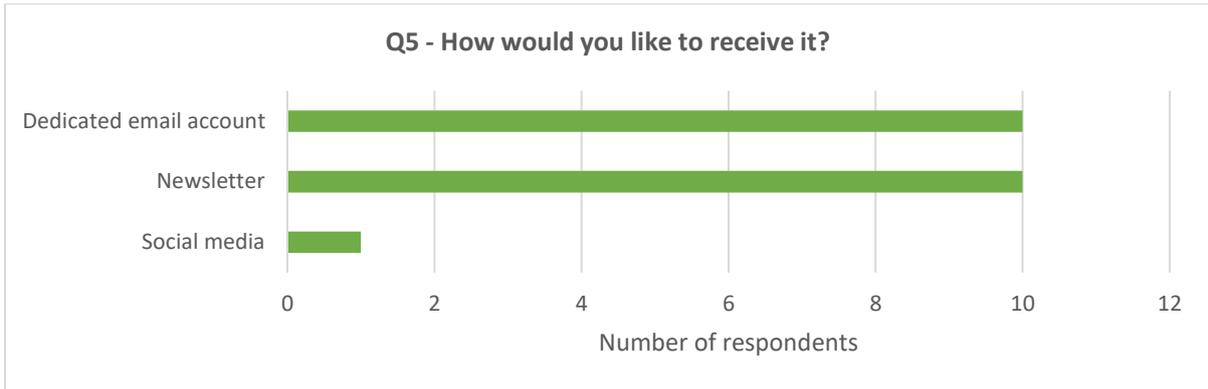


Figure 6: Participant responses to Question 5 “How would you like to receive information?”.

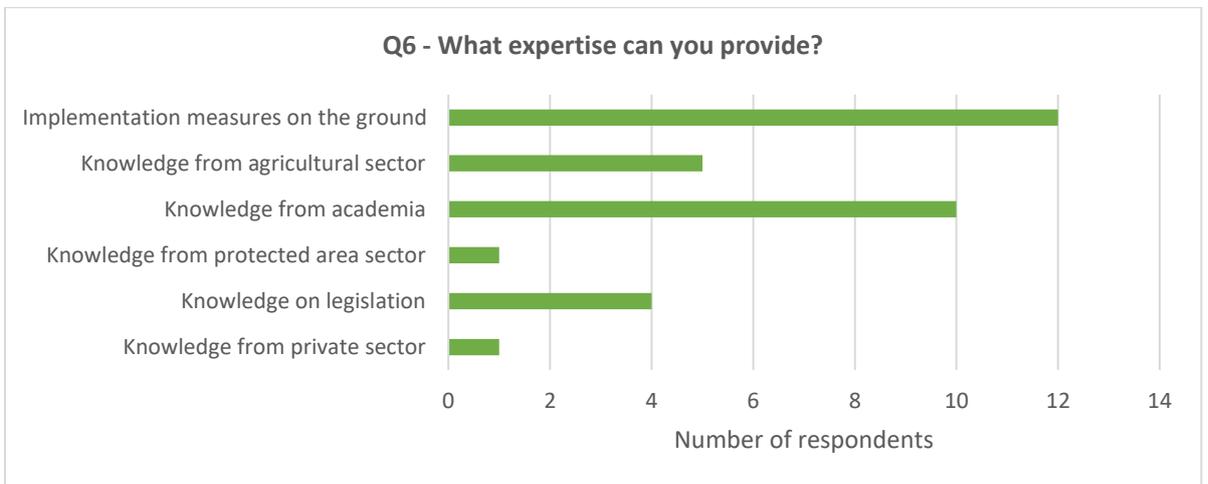


Figure 7: Participant responses to Question 6 “What sort of pollinator-related information can you offer?”.

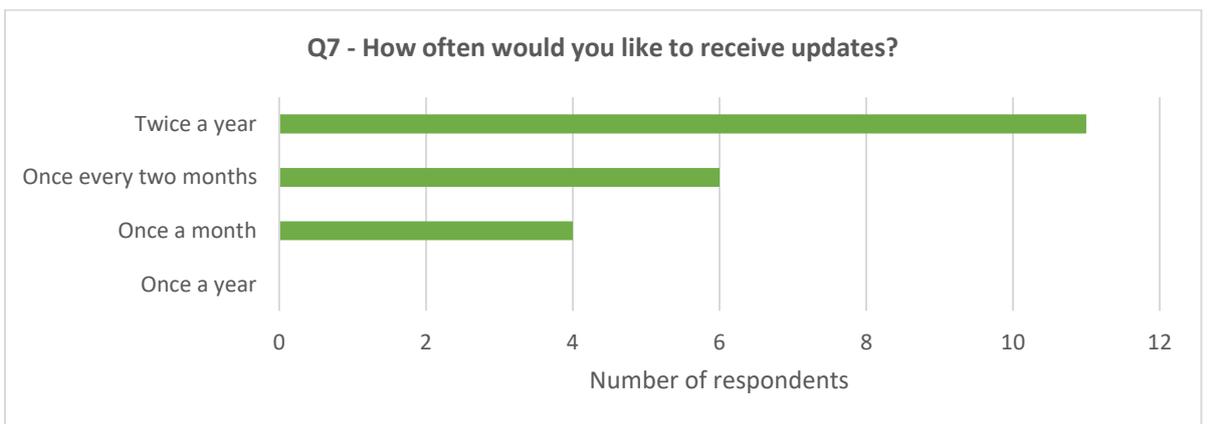


Figure 8: Participant responses to Question 7 “How often would you like to receive updates?”.

4. Appendices

4.1 Appendix I – Invitation to prospective participants



Please register!

Workshop on conservation measures that benefit pollinators applied under the Nature Directives in Natura 2000 sites

[IUCN](#) and the [European Commission](#) invite you to a workshop on Wednesday 13th November 2018 in Brussels.

The attendance to this workshop is by invitation only.

With the active involvement of competent authorities and relevant stakeholders such as Natura 2000 site managers and pollinator experts, this workshop aims to identify the best management measures and approaches being implemented for pollinator conservation across Natura 2000 sites, thereby increasing the profile of pollinators' actions in the management of the Natura 2000 network.

The workshop will consist of a series of presentations in the morning and an afternoon dedicated to group discussions on the available tools and initiatives, under the Nature Directives, that promote the conservation of pollinators. In general, we hope to build on discussions that were initiated in previous workshops, such as the Results-based Agri-environment Schemes Conferences and within the Natura 2000 biogeographic process to take stock of pollinator conservation science, identify gaps, discover synergies with the private sector and local stakeholders, and highlight good conservation examples in the context of proper habitat and site management.

[**Event Registration**](#)

This workshop is organised under Action 4B of the EU Pollinators Initiative, funded by the European Commission.



4.2 Appendix II – Participant List

| Participants | Organisation | Country |
|------------------------------|---|-------------|
| Anca Barbu | Asociația Zarand | Romania |
| Anne Eskilden | SEGES - Agriculture & Food FmbA | Denmark |
| Ante Vujic | Co-Chair IUCN Species Survival Commission Hoverfly Specialist Group | Serbia |
| Arnaud Sepulchre | Natagriwal | Belgium |
| Axel Ssymank | Bundesamt für Naturschutz | Germany |
| Barbara Battioni | IUCN European Regional Office | Belgium |
| Bas Oteman | NIOZ Royal Netherlands Institute for Sea Research | Netherlands |
| Catarina Ferreira | IUCN European Regional Office | Belgium |
| Corrado Teofili | Europarc - Federparchi | Italy |
| Damien Sevrin | Natagora | Belgium |
| Deepa Senapathi | University of Reading | UK |
| Evelyn Underwood | Institute for European Environmental Policy (IEEP) | Belgium |
| Frank Vassen | European Commission - DG Environment | Belgium |
| Helle Franz van der Roest | Dutch Beekeepers Association | Netherlands |
| Ina Agafonova | Via Pontica Foundation | Bulgaria |
| Irma Wynhoff | Vlinderstichting | Netherlands |
| Ivana Ilijas | Ministry of Environmental Protection and Energy | Croatia |
| Jean-Sébastien Rousseau-Piot | Natagora | Belgium |
| Jens d'Haeseleer | Natuurpunt Studie | Belgium |
| Jeremie Crespin | European Commission - DG Environment | Belgium |
| Johan Abenius | Swedish Environmental Protection Agency | Sweden |
| Julien Piqueray | Natagriwal | Belgium |
| Kristijan Civic | Eurosite | Belgium |
| Lynn Dicks | University of East Anglia | UK |
| Martin Corley | CIBIO Research Center in Biodiversity and Genetic Resources, Portugal | Portugal |
| Merit Otsus | Ministry of the Environment, Nature Conservation | Estonia |
| Micheal O'Briain | European Commission - DG Environment | Belgium |
| Natasha de Manincor | Université de Lille | France |
| Noa Simon | Bee-Life | Belgium |
| Peter Borgen Sørensen | Department of Bioscience - Aarhus University | Denmark |
| Philip Rekret | IUCN European Regional Office | Belgium |
| Răzvan Popa | Fundatia Adept | Romania |
| Sebastien Husse | Parc Naturel Regional Vosges du Nord | France |
| Serge Gadoum | Office Pour les Insectes et leur Environnement | France |
| Simona Bonelli | University of Torino | Italy |

| Participants | Organisation | Country |
|---------------------|--|----------------|
| Sophie Condé | Deputy manager chez ETC/Biodiversity | France |
| Sophie Ouzet | European Commission - DG Environment | Belgium |
| Sophie Woolcock | IUCN European Regional Office | Belgium |
| Susanna D'Antoni | Istituto Superiore per la Protezione e la Ricerca Ambientale (ISPRA) | Italy |
| Vanessa Sanchez | Fundación Global Nature | Spain |
| Veerle Versteirt | Flemish Government - Agency Nature and Forest | Belgium |
| Virve Sõber | University of Tartu | Estonia |
| Vujadin Kovacevic | European Commission - DG Environment | Belgium |
| Wilhelm Osterman | Martin-Luther-University Halle-Wittenberg | Germany |
| Wout Opdekamp | Natuurpunt | Belgium |
| Yves Piquot | Université de Lille | France |

4.3 Appendix III – Agenda

Workshop on conservation measures that benefit pollinators applied under the Nature Directives in Natura 2000 sites

Wednesday 13th November 2019
DG ENV, Room C, 5 avenue de Beaulieu, Brussels

Workshop moderator: Catarina Ferreira, IUCN

9-9.30h *Participant Sign-in*

9.30-10.30h Speaker presentations

- Introductory remarks and purpose of this workshop – *Micheal O’Brian (DG ENV, EC, Belgium)* [5 min]
- Overview of the EU Pollinators Initiative– *Vujadin Kovacevic (DG ENV, EC, Belgium)* [10 mins]
- Plant-pollinator network diversity in calcareous grasslands - *Natasha de Manicor (University of Lille, France)* [10 mins]
- Habitats action plans for calcareous grasslands (6210) and European dry heaths (4030) highlighting elements relevant for pollinators - *Evelyn Underwood (IEEP, Belgium)* [10 mins]
- Butterfly trends and conservation outside and within Natura 2000 sites – *Irma Wynhoff (BCE, UK)* [10 mins]

- Q&A [15 mins]

10.30-11.00h *Coffee break*

11.00-12.00h Speaker presentations

- Motivating site managers to implement pollinator friendly practices in Natura 2000 sites - *Sébastien Husse (Parc Naturel Régional de Lorraine, France)* [10 mins]
- Contributions of result based schemes to pollinators conservation in Natura 2000 sites : the case of the Tarnava Mare and Pogány Havas Regions in Romania – *Răzvan Popa (Fundatia Adept, Romania)* [10mins]
- Biodiversity and specific conservation measures in agrarian landscapes to benefit pollinators. LIFE Food & Biodiversity - *Vanessa Sánchez (Fundación Global Nature, Spain)* [10mins]
- Working with farmers to improve conditions for wild bees in Natura 2000 sites - *Anne Erland Eskildsen (Danish Agriculture & Food Council F.m.b.A., SEGES)* [10 mins]

- Q&A [15 mins]

12.00-12.15h Breakout sessions*

- Introduction to the breakout sessions

There will be 3 concurrent breakout groups each focusing on the following questions:

SESSION 1 - The knowledge base: what does current conservation science tell us about which and how common and wild pollinators are protected in the Natura 2000 network? What information/data are we missing? What does science tell us about effectiveness of conservation measures for pollinators on Natura 2000 sites? [Room A]

- Moderator/Rapporteur: Deepa Senapathi, University of Reading, UK
- Note taking: Philip Rekret, IUCN

SESSION 2 - Natura 2000 management measures that benefits pollinators: what are good management practices and tools for pollinators in N2K sites? How do we measure their effectiveness? How can they be financed? Is there anything (in terms of restoration & management) that could be done better compared to what is being done already (adapting measures)? What are the barriers and the opportunities of the network to promote pollinator conservation? What are the pressures? What measures can be implemented on the ground, via for example management plans with pollinators targets, that include different stakeholders (farmers, etc)? What can be the role played by the biogeographical process? [Room B]

- Moderator/Rapporteur: Catarina Ferreira, IUCN
- Note taking: Barbara Romanelli, IUCN

SESSION 3 - Connectivity between N2K sites: Landscape approaches, connectivity between N2K sites and areas outside of the network (GI, buffer zones, role of private sector?). [Room C]

- Moderator/Rapporteur: Evelyn Underwood, IEEP
- Note taking: Sophie Woolcock, IUCN

Each of the 3 breakout sessions will touch upon Ecosystem Services, particularly the benefits to the wider society of promoting habitats adequate for pollinators within N2K (can these be quantified?).

12.15-13.30h *Lunch*

13.30-15.30h Breakout sessions

The approximate duration for each session is 40 min and each session will comprise approximately 13 participants. The participants will rotate among the 3 breakout groups, thereby ensuring that they provide their insights to all of the questions. Each of the groups will be composed of a mix of stakeholders. The goal of these moderated discussions and breakout groups is to identify best management practices for pollinators, synergies with private sector and local stakeholders, and discuss effectiveness and feasibility of conservation measures and management approaches applied in N2K sites under the Nature Directives for conservation of pollinators and their common habitats.

15.30-15.45h *Coffee break*

15.45-16.45h Report back from breakout sessions and general discussion

16.45-17.00h Wrap up of the day and next steps

17.00h *End*

Coffee breaks are provided. Multiple lunch options are available on site, but at each participant's expense.

4.4 Appendix IV – Feedback Form

Feedback Form

Workshop on conservation measures that benefit pollinators applied under the Nature Directives in Natura 2000 sites

1. Workshop content

| | Very good | Good | Satisfactory | Needs improvement |
|--|-----------|------|--------------|-------------------|
| (a) Amount of time allocated to presentations | | | | |
| (b) Amount of time allocated to group sessions | | | | |
| (c) Amount of time allocated to general discussion | | | | |
| (f) Diversity and relevance of speakers | | | | |

2. Do you think the pollinator conservation measures discussed today can be effectively promoted and uptaken inside Natura 2000 sites? Please explain briefly.

3. In your opinion, what is the greatest contribution the Natura 2000 network can make to the conservation of wild pollinators at a European scale? Please explain briefly.

4. In your opinion, what is the greatest challenge for effective uptake of pollinator conservation measures in the Natura 2000 network at a European scale? How can it be addressed? Please explain briefly.

5. In your opinion, how can we improve the level of communication between all stakeholders involved in wild pollinator conservation across Europe (e.g. farmers, site managers, academics, NGOs, governments)?

6. Any other general comments?

Thank you for your participation!