



# *Event Report*

**Regional Workshop on Invasive Alien Species and Pollinators**

**27 – 28 October 2020**

**Live video conference**



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## 1 Introduction

The regional Workshop on Invasive Alien Species and Pollinators took place on October 27-28, 2020, via live video conference. The workshop was organized in cooperation with TAIEX, and under the EPPA project work programme, namely activity 5.1.3 “Capacity building on invasive alien species”.

The participants of the workshop came from the relevant authorities of the EPPA beneficiaries involved in nature conservation. They represented the Ministries with the environment or agriculture portfolio, in addition to other relevant institutions, such as institutes for the protection of natural heritage, universities, forest agencies, environment protection agencies, and custom administrations of all beneficiaries: Albania, Bosnia and Herzegovina, Kosovo\*, Montenegro, North Macedonia, Serbia, and Turkey. Details are available in the list of participants.

Civil society was represented by NGOs from the beneficiaries, namely: the Centre for protection and research of birds (Montenegro), the Advocacy Training and Resource Centre – ATRC (Kosovo\*), Young Researchers of Serbia, Doğa Koruma Merkezi (Nature Conservation Centre from Turkey).

Representatives from the EU Delegations (or Office) of Albania, Bosnia and Herzegovina, Kosovo\*, North Macedonia and Turkey were present.

The speakers represented EU Member States’ and others’ experience: the Hungarian Natural History Museum, the Ministry of Environment of Romania, the Bulgarian Academy of Science (Institute of Biodiversity and Ecosystem Research), University of Life Sciences of Poland, Environmental Agency of Austria, Institute of Ecology and Botany of Hungary.

Moreover, EU institutions were represented by speakers from the European Commission Joint Research Centre (JRC), and DG ENV. The workshop also brought in the experience of the University of Concepcion, Chile, the Ontario Tech University, and the European Climate Foundation. Details are available in the agenda.

The presentations can be downloaded in both the TAIEX website and in the EPPA project website.

## 2 Objectives of the training and expected results

The aim of the workshop was to provide advice to the beneficiaries so as to improve prevention, early detection, rapid eradication and management of invasive alien species of Union concern. Guidance on surveillance and pathway management, as well as the methodology to supply data to the European Commissions’ Joint Research Centre (JRC) alien species databases through the European Alien Species Information Network (EASIN) will also be provided. The workshop will therefore improve the capacities of the EPPA beneficiaries to obtain a better understanding of the invasive alien species acquis and its implementation and to encourage the exchange of views and best practice between the participants.

The workshop also provided an opportunity to exchange information regarding the setting of strategic objectives and actions to address the decline of pollinators in the EU and to contribute to global conservation efforts.

## 3 Highlights from the workshop

### 3.1 Introduction to the workshop

Mr. Mihail Dimovski welcomed the participants. He explained the agenda rationale and objectives, as well as the expertise of the speakers helping to deliver it. He offered his gratitude to the European Commission and other involved experts for their valuable contributions in defining the scope and delivering the present workshop. Mr. Mihail Dimovski led a round of introduction of all attendees.

### 3.2 Invasive alien species in the EU biodiversity strategy for 2030 and the global biodiversity framework

Mr. Leonardo Mazza presented the EU policy framework on invasive alien species (IAS). He established IAS as one of the five main drivers of biodiversity loss globally, which in turn has impacts in ecosystem services, human health, and the economy. Alien species are transported, through human action, intentionally or unintentionally, across ecological barriers outside their natural range. In the EU, there are 12 000 alien species, 10 to 15% of those are invasive, and they cost at least 12 billion euros annually



to the European Economy. The problem is expected to grow further. IAS is considered harmful to native wild pollinators in Europe such as: bees & wasps; butterflies; beetles and mites; ants; plants & fungi. The EU's IAS regulation is part of an international policy framework to combat invasive species, including the CBD Convention, Aichi Target 9, and the EU own's biodiversity strategy (action 16). IAS remains a priority in the new biodiversity strategy of the EU (2030).

The objective of the IAS regulation is to prevent, minimise and mitigate the adverse impact on biodiversity because of the introduction and spread within the Union, both intentional and unintentional, of IAS. It applies to all IAS defined as alien species (ie introduced outside their natural range) whose introduction or spread has been found to threaten or adversely impact upon biodiversity and related ecosystem services. At the core of the regulation is the list of IAS of Union concern, species for which concerted action at Union level is required. The list is based on scientific criteria and risk assessments. After the latest update in 2019, there are 66 IAS of Union concern. Another update is expected in 2021. The implementation of the regulation faces some challenges, such as: allocation of limited resources, selection of most appropriate measures, public opinion (animal welfare, use of pesticides), and sectoral interests. The implementation of the regulation is supported by the European Alien Species Information Network (EASIN), an information support system to keep track of IAS and related measures.

### 3.3 European Alien species Information Network (EASIN)

Ms. Ana Cristina Cardoso presented the European Alien Species Information Network (EASIN). Currently, the available information often not sufficient or efficiently aggregated to assist the European policy on alien species (AS), because of data quality, standards, interoperability. EASIN seeks to respond to that gap by facilitating access to updated scientific information and spatial data on alien species occurring in Europe; providing web tools and services to support policy makers, researchers, stakeholders; and offering an official information system facilitating EU MS in the implementation of the EU Regulation on Invasive Alien Species (EU Reg.1143/2014).

EASIN's key components are: the catalogue, the geodatabase, the Editorial Board, and the Official Notification System (NOTSYS). The catalogue integrates scientific information on AS in Europe's marine, terrestrial and freshwater environments. The Editorial Board assures data quality, updates the EASIN Catalogue, offers an on-line platform for addressing scientific questions and it has 37 members. The geodatabase is a network of online, interoperable web services. Finally, the NOTSYS is the official notification system MS must use to notify the EU of IAS.

### 3.4 IAS impact on EU Biodiversity, IAS main pathways of introduction and further spread, ten-ten rule on IAS being established, examples on measures and costs for preventing, controlling and eradication

Mr. Zoltan Feher presented the dynamics of IAS in Europe's ecosystems. At the moment, it is estimated that 3 000 new alien species will arrive in Europe until 2050. That increase will be highest for crustaceans, molluscs, birds, insects and fishes. Mr. Zoltan Feher clarified the concepts related to non-native species:

- Exotic: A species outside of its natural range introduced intentionally or unintentionally but not considered harmful or a nuisance
- invasive alien: Species that grow and reproduce quickly, spread aggressively, and cause harm
- potentially invasive: Any newcomer implies the risk of becoming invasive. Due to the lack of knowledge and direct experience they should be treated with care.

In relation to the conceptual definition, the Tens Rule of the Invasion Process show that only a small portion of introduced species becomes a concern to people. However, the negative impacts are serious to human and animal health, to plant health and even industry. In addition to that, they decrease biodiversity and displace endemic species.

Mr. Zoltan Feher reviewed Aichi target 9 and EU biodiversity strategy target 5 to highlight that further works needs to be done to control or eradicate priority species and to manage pathways to prevent the introduction and establishment of new IAS. Europe needs to invest more in experts training and strengthening their institutional background, as well as developing more cooperation between national experts.



### 3.5 Bulgarian experience in the study of invasive and alien species

Mr. Ivaylo Dedov presented the Bulgarian experience in the study of invasive and alien species, namely the results from the research project “East and South European Network for Invasive Alien Species (ESENIAS)”. ESENIAS was established in 2011 to exchange and sharing of IAS information, to facilitate collaboration between institutions and IAS experts from SE Europe, to have joint research activities, to foster regional IAS policy development and harmonisation, and to promote integration to European and global IAS initiatives.

In the period 2015-2017, together with 11 partners from Bulgaria, Northern Macedonia, Greece, Croatia, Serbia, Romania and Iceland, the project "East and South European Network for Invasive Alien Species (ESENIAS)" was implemented. Its aim was to support networking and development of invasive alien species tools within the frame of ESENIAS in order to support the management of alien species in Bulgaria and in the region.

The project identified 356 foreign invertebrates, 21 species as cause for concern and 15 dangerous species to the environment, health, and economy. Several pathways were detected: natural expansion of the range of invasive species that aggressively occupy new neighbouring territories; accidental transfer with planting materials, construction materials, fresh foods (fruits and vegetables), etc; through regulated or illegal import of species.

In the frame of the supporting project “Improving the Bulgarian Biodiversity Information System (IBBIS)” methodology and protocols for monitoring of selected taxonomic and ecological groups of alien species in Bulgaria, including those of EU concern, have been developed and tested.

When a species is detected, the Bulgarian protocols are:

- In case of already introduced and established species:
  - assess the state and trends in the species populations (distribution, abundance, age, etc.);
  - assess the current state and trends in the magnitude of impact of alien species on the native biodiversity and ecosystem services;
  - Monitoring of the effectiveness of the applied management measures.
- In case of not yet introduced species on the territory of Bulgaria or a given region:
  - Early detection of new localities of the species;
  - Monitoring of the effectiveness of the applied prevention and management measures.

### 3.6 Invasive Alien Species in the freshwater and marine environment: links with the Water Framework Directive (WFD) and Marine Strategy Framework Directive (MSFD)

Mr. Gheorghe Constantin centred his presentation around the black sea basin IAS problems. The region is subject to IAS pressures. Romania sees the MSFD as important tool to manage marine IAS. The concept of good environmental status is essential and holistic: this approach can also be used to manage IAS. The WFD good water status objective, in synergies with MSFD, includes water biodiversity, which means that IAS will also affect this parameter.

The Danube river basin plan (ICPDR) recognizes the basin’s vulnerability to IAS, which are becoming a major concern. Therefore, effective river basin management increasingly needs to consider IAS. The Danube is susceptible to colonization by neobiota. There is a joint Danube survey taking place every 5 years from spring to Black Sea. The conclusion of the latest survey shows many IAS are present in abundance throughout the entire course of the river. Mr. Gheorghe Constantin gave some examples, including the killer shrimp. Implementing the WFD then becomes dependent on the successful management of the IAS issue. The ICPRD developed a common approach to deal with IAS in the Danube basin: methods for IAS assessment and their impact.

The Black Sea is under threat from IAS from the Mediterranean Sea and Indian Ocean, due to shipping and global warming, and with negative impacts to local biodiversity. The changes have been sustained



since the 1970's which raises the possibility of Black Sea ecosystems being permanently changed. Mr. Gheorghe Constantin gave examples of species that had an overwhelming impact in the Black Sea. Mr. Gheorghe Constantin called for future measures at EU level, including further research, education, awareness raising, concrete measures for shipping and port management (ballast waters).

### 3.7 Impact of Invasive Alien Species on pollinators

Mr. Peter Stoett introduced the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), an independent intergovernmental body, established in 2012 by Governments, with currently 137 Members. IPBES's mission is to strengthen knowledge foundations for better policy through science, for the conservation and sustainable use of biodiversity, long-term human well-being, and sustainable development.

The IPBES IAS thematic assessment of invasive alien species and their control, which is currently in progress, is expected to be completed by 2023. The report has a global scope and it is being written by about 80 experts encompassing all regions and disciplines, taking into account gender balance. Its purpose is to assess the threat that invasive alien species pose to biodiversity, ecosystem services and livelihoods and the global status of and trends in impacts of invasive alien species by region and sub-region, taking into account various knowledge and value systems.

The report will be structured as follows:

- Chapter 1: Introduction to the concepts of invasive alien species
- Chapter 2: Status and trends
- Chapter 3: Direct and indirect drivers affecting the introduction, establishment and spread of invasive alien species
- Chapter 4: Impacts of invasive alien species on Nature, Nature's Contributions to People, Sustainable Development, and Good Quality of Life
- Chapter 5: Management, lessons learned
- Chapter 6: Future options for the prevention and management of invasive alien species.

### 3.8 Romanian experience in implementing the IAS Regulation

Ms. Doina Cioaca and Nicolae Manta presented invasive species management in Romania. The implementation of the IAS regulation is supported by a projected implemented in cooperation between the Ministry of Environment, Waters and Forests and the University of Bucharest (2018-2022). It aims to create the scientific and administrative tools necessary for an efficient management of invasive alien species in Romania. More specifically, the project is:

- Making an inventory and mapping of invasive alien species in Romania and elaborating a national list of alien species
- Identifying pathways which require priority action and prioritizing invasive species
- Elaborating an action plan on the pathways of invasive alien species in a participatory manner
- Raising awareness of local people and stakeholders
- Building administrative capacity to manage IAS in Romania

In parallel, Romania is working in other IAS initiatives, such as containment of IAS at the Iron Gates, early detection system of IAS, weed harvesting, removal of IS trees (tree of heaven and false indigo), halting the expansion of invasive plant species in the Mureş Floodplain Natural Park, participatory management of IAS in Lower Siret Floodplain, etc.

### 3.9 The impacts of invasive alien species in Europe, Case study Austria

Mr. Wolfgang Rabitsch presented the experience of Austria implementing the IAS regulation. The first national inventory of alien species was completed in 2002, for which a major update is expected the latest by 2021. The species distribution data is currently scattered, but available evidence seems to indicate that, despite upward trends, there isn't yet a saturation of numbers. In addition, there is good knowledge on the impacts of IAS in agriculture, forestry, pathogenic fungi and human health. The environmental impacts remain little understood.



The competent authorities for the implementation of the IAS regulation are Federal Government plant and animal health authorities at the borders and the nine federal provinces, which are responsible for nature conservation, hunting and fisheries. Some provinces amended their corresponding laws; some issued overarching laws to cover the implementation (process still ongoing). However, legal responsibilities for several of the activities are still under debate, e.g., in relation to forests, infrastructures (roads, railways, canals), and zoos.

Austria has identified its priority pathways, which include pet trade / aquaristics / terrarium, botanic gardens, zoos, ornamental species (animals and plants), in or on cars, trains and ships, contamination of soil, gravel, and dead plants, contamination of devices / machinery / equipment, contamination of seeds, bird seeds, stocking (fisheries). fishing and angling accessories, water corridors. Austria is also in the process of preparing its first action plan. The plan, which was sent to the EC in August 2020 and went a public consultation process in October 2020, contains different voluntary measures, such as increasing public and stakeholder awareness, education, code of Conducts, etc. Its implementation will depend on stakeholder commitment, enforcement (still to be defined) and learning from other's best practices.

Mr. Wolfgang Rabitsch gave the following recommendations for the implementation of IAS regulation in EPPA beneficiaries:

- Identify legal responsibilities as soon as possible
- Guarantee coordination and communication between authorities and stakeholders
- Increase awareness at all levels (be aware of opposing interests)
- Generate knowledge at all levels
- Develop admin, Scientific data on distribution and impacts (invasion hotspots), IT/GIS, Management
- Be aware of your special biodiversity features
- Learn from others, do not reinvent the wheel

### 3.10 Plant IAS

Mr. Zoltan Barina presented the background of plant invasions. He offered a scientific perspective on a species becoming invasive:

- casual transport - at least 75% and 93% of the global naturalised alien flora is grown in domestic and botanical gardens, respectively.
- colonization
- establishment and
- landscape spread.

The pathways of invasive alien plant introductions are mostly intentional (62%) for forestry, ornamental, agricultural, and horticultural uses. The unintentional introductions (38%) mostly derive from seed and commodity contaminants, as well as stowaways.

Residence time is a pivotal factor in the current distribution of alien species. The probability of escape and naturalization increase with residence time, but it also depends on planting intensity (propagule pressure). The probability of naturalization is lower for species from Asia and those with small fruits.

### 3.11 Presentations from the EPPA beneficiaries on institutional and legal activities to carry out implementing obligations of IAS Regulation

#### 3.11.1 Albania

The Albanian delegation had technical issues preventing the presentation from taking place. One of the delegates committed to send a summary of Albania's situation regarding IAS in writing, after the event.<sup>1</sup>

#### 3.11.2 Bosnia and Herzegovina

The issue of invasive species in Bosnia and Herzegovina is governed by laws and bylaws at the entity level. The Law on Nature Protection of Federation of BiH (Official Gazette of FBiH, no. 66/13) declares the introduction of foreign species/subspecies to be prohibited, except if it is scientifically and professionally

<sup>1</sup> Summary not received until the moment of writing this report.



acceptable from the point of view of nature protection, expert opinion, and sustainable management. The Law on Nature Protection of RS (Official Gazette of RS, no. 20/14) provides for a similar framework. In Bosnia and Herzegovina, there is a lack of documents regulating the monitoring, control and minimization of negative impacts of invasive species.

Bosnia and Herzegovina presented the example of activities to prevent the spread and destruction of ragweed (*Ambrosia artemisiifolia*). There were decisions from the Governments of both entities to prescribe measures to prevent the spread and for destruction of ragweed, to determine the persons or subjects obliged to implement measures, and to determine the supervision over the implementation of measures.

The Federation of BiH also has an action plan for informing the public, and for the destruction and control the spread of ragweed. Furthermore, FBiH developed an Inventory and Geographical Interpretation of Invasive Species, which will be the basis for development and adoption of action plans with measures to control and prevent the spread of certain invasive species in the coming period.

In Bosnia and Herzegovina, considerable efforts are still needed to achieve goals set out in the strategies and needs according to the EU requirements.

### 3.11.3 Kosovo\*

Kosovo\* has an "Administrative Instruction on the Manner of Development and Implementation of Risk Assessment Study for the Introduction, Re-introduction and Cultivation of the Wild Species".<sup>2</sup>

### 3.11.4 North Macedonia

North Macedonia presented its legal framework. The introduction of non-native species in nature is regulated by the Law on Protection of nature Protection ("Official Gazette of the Republic of Macedonia" No. 67/04, 14/06, 84/07, 35/10, 47/11, 148/11, 59/12, 13/13, 163/13, 41/14, 146/15, 39/16, 63/16, 113/18). For the deliberate introduction of some species is necessary permission from the MoEPP. Furthermore, the National Biodiversity Strategy and Action plan (2018-2023), goal 8, seeks "To build and establish an appropriate policy for records, control and protection from non-native and invasive species". The Republic of North Macedonia still does not have a final list of invasive vascular plants. At the moment, they are works on preparing a list of invasive aquatic and terrestrial plants from Macedonia, within the list of invasive species in Southeast Europe.

The number of registered archeophytes (introduced long ago) and neophytes (newly introduced species) in the flora of Macedonia has not yet been precisely determined but is considered to be more than 110 species and this number is constant is growing. Of these, 46 are considered invasive species plants Most of the invasive plant species are found on ruderal surfaces and in some aquatic areas ecosystems. For some invasive species that have a direction of spread south-north, can be expected to become more aggressive towards the northern parts of the territory of Republic of North Macedonia.

Non-native and invasive animal species in the Republic of North Macedonia are not sufficiently studied and documented. Most introduced and invasive species of fauna belong to fish, mammals and insects. So far, very little attention has been paid to attendance of non-native species of invertebrates in Macedonia and their invasiveness. The exception to this are to some extent the species that cause damage to crops, such as the potato gold (*Leptinotarsa decemlineata*).

### 3.11.5 Montenegro

The Law on Nature Protection has several provisions related to IAS. However, the existing legal framework is not enough to be in full compliance with the IAS Regulation. Therefore, Montenegro is passed a new law on alien species and invasive alien species to close the gap in March 2020. The law is more ambitious than the regulation, as it regulates alien species in addition to invasive alien species.

The law foresees the creation of two lists: a list of allowed alien species developed based on the best available scientific knowledge, and a list of IAS for Montenegro, including the EU listed species as well as other species particularly relevant for the Montenegro situation. Species not on both lists, can be

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<sup>2</sup> No further details provided by the Kosovo\* delegation during the meeting.



introduced based on a case-by-case licensing process led by the Nature and Environment Protection Agency of Montenegro. Montenegro will also start preparing action plans to close pathways and action plans for widely spread IAS, together with monitoring and reporting measures. An additional 4 by-laws are expected to fully operationalize the law on alien species and invasive alien species.

Control will be done at land border by customs and at sea by the maritime agency, complemented by different topical inspectorates inland. Montenegro foresees the need to implement capacity building measures for all institutions and staff dealing with enforcement.

### 3.11.6 Serbia

Serbian legislation is not yet aligned with the IAS Regulation, but the current law on nature protection offers provisions on the matter. It will serve as the background for the by-law that will regulate IAS in detail, in line with the Regulation. In general, the introduction of alien species is not allowed in Serbia, with exceptions if scientifically justified or if it does not harm autochthonous species based on a permit. The Ministry of Environmental Protection has the legal competence to declare a species as invasive if it threatens local species or ecosystems. There are also specific regulations for the import of alien species, with established procedures and criteria for its rejection.

Alignment with the Regulation will be facilitated by the revised nature protection law and associated by-laws. The adoption was planned for 2021, but the pandemic situation will most likely cause a delay.

Serbia is undertaking several activities to prepare the implementation of the Regulation, including on the linkages between aquaculture, animal husbandry and environment, among others.

## 3.12 EU Pollinators Initiative and list of actions

Mr. Vujadin Kovacevic presented the EU Pollinators Initiative. It was adopted in 2018 (COM(2018)395 + SWD(2018)302), containing 30+ actions and putting forth a long-term perspective for the issue. The Initiative is divided in 3 thematic pillars.

The first, “Improving knowledge” includes:

- Monitoring and assessment – EU Pollinator Monitoring Scheme, policy indicators, European red list
- Research and innovation – through funding programmes such as Horizon 2020.
- Knowledge sharing – by providing access to data and pollinator information

The second, “tackling causes of decline”, includes:

- Endangered species & habitats through action Plans / LIFE, and conservation measures in Natura 2000
- Habitats in rural and urban areas through the EU Common Agricultural Policy (indicator, RBPS) and Cohesion Policy
- Pesticides via authorization, restrictions, use (NAPs)
- Invasive alien species

The third, “engagement, collaboration”, includes:

- Businesses and citizens
- Member States (Tools for national, regional, and local, pollinator strategies, scoping activities)
- Global action
- Pollinator Information Hive (WIKI)

The EU places importance on actionable knowledge to build effective policy responses. The EU pollinator monitoring framework maps the problem and actions in an adequately high spatial and temporal resolution, including species, pressures, consequences, and societal response. Other monitoring initiatives include EMBAL (biodiversity in agricultural landscapes still in development), INSIGNIA (monitoring pesticides – still in development), etc.

The EGD and the BDS2030 have brought higher ambition to reverse pollinator decline. It is possible the Initiative will be reviewed and revised soon.



### 3.13 IPBES Assessment report on pollinators and food

Ms. Anikó Kovács-Hostyánszki gave more information about the IPBES - Thematic assessment of pollinators, pollination and food production. The pollination assessment is increasingly a relevant topic: pollinator loss has high policy relevance due to its economic and ecological components. Some of its values are:

- Economic: Direct contribution to food production is € 192-366 billion p.a. globally
- Human health: Pollinator-dependent crops supply major proportions of micronutrients
- Ecosystem health: ~90% of wild plants rely on pollinators, which support wider biodiversity
- Biocultural values: art, literature, music, song, heritage, religion, recreation, education, ornamental plants, landscapes, medicine, construction materials, biofuels, fibre, industrial design, biomimicry, pharmacology, etc.

The assessment involved 70 experts from all world regions, and it was concluded in 2016. The assessment is divided in 6 chapters:

- Chapter 1: Introduction. A brief review of the diversity of pollinators and pollination systems and their role in supporting food production, human wellbeing & biodiversity maintenance more generally.
- Chapter 2: drivers of change of pollinators, pollination networks & pollination services, especially those of importance for food production, including local crops, wild food plants & honey.
- Chapter 3: status and trends in pollinators, pollination networks & pollination services as keystone ecological process & service in both human managed & natural terrestrial ecosystems.
- Chapter 4: economic methodologies for determining the value of pollination for food production & the impacts of declines in food-relevant pollinator populations.
- Chapter 5: non-economic valuation, with special emphasis on the experience of indigenous & local communities, of impacts of the decline of diversity and/or populations of pollinators
- Chapter 6: responses to risks associated with the degradation of pollination services & opportunities to restore & strengthen those services.

The assessment found 785 bee species as visitors to crop plant flowers. Overall, wild insects pollinate many crops more effectively and the loss of a single pollinator species can reduce floral fidelity in the remaining pollinators, reducing plant reproduction, even when potentially effective pollinators remained. 75% of the leading global food crops rely to some extent on animal pollination for yield and/or quality. Pollinator dependent crops contribute to 35 % of global crop production volume. 5-8 % of current global crop production, with an annual market value of \$235-577 billion worldwide is directly attributable to animal pollination. Many cash crops in developing countries (e.g., coffee and cocoa) and developed countries (e.g., almonds), provide employment and income for millions of people. Europe has an estimated loss of 50% in its honeybee population between 1950-2000.

16.5 % of vertebrate pollinators are threatened with global extinction, particularly hummingbirds and bats. In Europe, 9% of bees and butterfly species are threatened and populations are declining for 37% of bees and 31% of butterflies. At national levels numbers of threatened species tend to be more than 50% for bees in some European countries. 48 from 60 species and subspecies of bumblebees in central Europe declined over the past 136 years, with 30% of them being considered threatened and four having become extinct.

The main drivers are:

- Land use change: Habitat loss, fragmentation & degradation in agricultural, natural, urban areas
- Land management: intensity, monocultures, GMO, intensive grazing, etc.
- Climate change
- Invasive alien species
- Pollinator diseases and bee husbandry

There are three main strategic responses to risks and opportunities associated with pollinators and pollination:

- Improving current conditions for pollinators and/or maintaining pollination
- Transforming agricultural landscapes:



- ecological intensification;
- strengthening existing diversified farming systems;
- investing in ecological infrastructure by protecting, restoring and connecting patches of natural and seminatural habitats throughout productive agricultural landscapes
- Transforming society's relationship with nature

IPBES Pollination assessment is a unique opportunity to enhance global policy and practice related to pollinators, pollination and food production. Globally we share many of the broad challenges and these will need locally developed solutions. Regional and national initiatives have a critical role to play in sharing knowledge, building capacity and supporting the development of better policies and practices.

### 3.14 EU Pollinators Initiative: A review of Member States actions to tackle the decline of wild pollinators, Austria

Mr. Martin Götzl presented the IEEP Report on actions to tackle the decline of wild pollinators in Austria; the implementation of the Biodiversity Strategy for 2030 in Austria, the Report on the situation of insects in Austria; the assessment and mapping of the pollination service in Austria, and finally the Report on Annex I habitat types important for pollinators.

Regarding the implementation of the Biodiversity Strategy for 2030 there is an ongoing consultation process with stakeholders on the content of the future Austria Biodiversity Strategy 2030. Aims and measures, with positive effects on wild pollinators, that are suggested by now and should be included in the Austrian Biodiversity Strategy 2030:

- Aims valid for the whole national territory
- Aims valid for specific habitats
- Measures to be taken for specific sectors
- Required framework to implement these measures

The report on the situation of insects in Austria, prepared on behalf of the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, by the Environment Agency Austria, aimed to compile available knowledge on:

- Number, distribution, trends in population development and extinction risk of insect species-
- importance of insects for the well-being of humans (ecosystem services)
- risks for humans that derive from insects
- Causes for the decline of insects in Austria as a basis for action plans to tackle the ongoing decline (including pollinating insect species)

Based on the report there are ~ 40 000 insect species in Austria. Although there is generally a lot of data available, it is not easily accessible. There is urgency for an extensive digitisation initiative to mobilize scientific data for the planning of measures based on evidence to reduce the decline of pollinating insects. The report on the assessing and mapping of ecosystem services in Austria, in accordance with target 2, action 5 of the EU Biodiversity Strategy 2020, was prepared on behalf of the Federal Ministry for Sustainability and Tourism, supported by the European Fund for Rural Development, and drafted by the Environment Agency Austria. Its aim was to assess and map Austrian's ecosystem services. 15 ecosystem services, using 23 indicators, were mapped to display services of 4 categories: Provisioning Services (e.g. food, fodder, materials, energy, drinking water), Regulating Services (e.g. CO<sub>2</sub> uptake, flood retention, pollination, erosion control), Cultural Services (e.g. recreation, enjoyment through observational activities), and Habitat/Supporting Services (maintenance of genetic diversity).

the Report on Annex I habitat types important for pollinators aimed to identify the habitat types from Annex I of the Habitats Directive that are most important for pollinators to have a sound basis to decide on measures to conserve relevant habitats. Some of the report results are:

- ~ 6 700 vascular plant species relevant for habitat types were compiled
- 700 plant species (70%) could be classified according their pollination mechanism
- 80% of 4 700 plant species were classified as important for pollinators (= 56% of all compiled plant species)
- The most important habitat types for pollinators are:



- Natural/semi-natural grassland habitats
- Sclerophyllous scrubs habitats
- Temperate heath and scrubs habitats
- Raised bogs, mires, and fens habitats
- Forest habitats

### 3.15 Effects of invasive plant species on pollinators, based on a current project and field samplings in Hungary and Romania

Ms. Anikó Kovács-Hostyánszki presented pollinator trends. In Europe 9% of bees and butterfly species are threatened, populations are declining for 37% of bees and 31% of butterflies. 48/60 species of bumblebees in central Europe declined over the past 136 years; 30% are threatened and 4 are extinct. One of the drivers are invasive alien species<sup>3</sup>. Invasive plant species, for instance, by becoming a food resource for, and pollinated by, pollinators establish themselves in the landscape changing the native floral availability with potential long-term impacts for the endogenous pollinators.

Ms. Anikó Kovács-Hostyánszki gave the example of the canadian goldenrod in Romania impact on native pollinator communities in different-aged old-fields. The invasion of *S. canadensis* had a negative effect on the abundance of bees irrespective of the old field age. The *S. canadensis* can provide alternative foraging resources for hoverflies and bumblebees, but only for a short time. Native flowers experienced reduced visitation by wild bees, honeybees and hoverflies due to the augmented presence of *S. canadensis*. The invasion of this perennial plant species alters the mutualistic links between the native elements and diverts the trajectory of vegetation succession. Active management is necessary against *S. canadensis*.

A different study focused on the invasion of 12 different invasive alien plant species in Hungary and Romania. With remarkable species level differences, IAS were found to decrease the diversity and abundance of native flower resources, which results in lower abundance, species richness and diversity of bees and hoverflies.

The flowers of IAS can be utilised by wild bees, honeybees, and hoverflies, increasing their abundance and hoverflies diversity in the invaded sites during their short flowering. Restoration of invaded habitats to promote native floral communities is suggested to promote wild pollinators over the year and to provide better bee pastures for honeybees respecting the whole season.

### 3.16 Pollinator declines in Poland. Intertwined relationships between wild and managed bees, their environment and pathogens

Ms. Anna Gajda presented pollinator decline in Poland. She started by characterizing the bee situation in Poland. There are circa 1.7 million *apis mellifera* colonies but no real control on their health status. In total there are 474 bee species in Poland, with 34 under partial or total protection.

Since the species share food resources, there is also a shared pathogen pool that affects bees health, such as deformed wing virus, acute bee paralysis virus, among others. Climate change and gaps in food availability are reducing the food basis of bees and therefore increasing pathogen spread (less flowers, more visitations in a single flower, more interactions between insects). Monocultures also reduce sources of food needed by bees, which in turn results in colony losses.

In addition, errors in pesticide use cause between 0,5–1% in honeybee colony losses. There are 1137 products registered in Poland that are either insecticides or fungicides (synergistic effects) or both. For instance, Neonicotinoids compromise foraging behaviour, return to the colony, navigation, and social communication, among others. Further research is necessary to understand the full impact of pesticides. Since 2006, the losses in bee colonies has been growing. Although there is no research in Poland that can explain the fact, neighbouring countries' colonies carry multiple pathogens, a situation that is most likely also happening in Poland.

<sup>3</sup> See speaker's previous presentation.



Both honeybees and wild bees are under pressure from many stressors. Living in the same environment pollinators share not only food but also pathogens. Extensive research on pollinator health status is urgently needed and honeybee health must be regulated/controlled more strictly.

### 3.17 Towards developing Pollinators Strategies - EPPA beneficiaries' initiatives and activities taken to halt loss of pollinators

**Montenegro** believes that a joint, coordinated international effort is needed to protect the honeybee and other pollinators. At the moment, Montenegro has no law or strategy that deal with pollinators specifically. However, Montenegro had a honeybee breeding programme start in 2018. Montenegro sees great potential to increase pollinator numbers with such initiatives.

**North Macedonia** is also taking action regarding pollinators, which includes:

- strengthening the participation of local communities in decision-making, in particular that of local people, who know and respect ecosystems and biodiversity;
- enforcing strategic measures, including monetary incentives to help change;
- increasing collaboration between national and international organizations, organizations and academic and research networks to monitor and evaluate pollination services.
- Policies for pollinators that promote biological pest control and limit the use of pesticides are implemented (action measures in Prespa region)
- Joint efforts for promoting World bee day
- Sofia declaration on the green agenda for the western Balkans

Moreover, the project "Nature Conservation Programme in North Macedonia (NCP)" by the Swiss Agency for development and cooperation (SDC), coordinated by Farmahem from Skopje and with the Ministry of Environment and Physical Planning (MoEPP) as its strategic partner and main user of the results. NCP pays special attention to the support of the beekeeping in Bregalnica region in order to achieve safe and quality bee products while reducing the impact on the environment, promote the local biodiversity and sustainable use of natural resources and generate economic benefit for the young beekeepers.

**Serbia**, through the University of Belgrade, is running several projects for ecosystem services that also address issues of pollination and pollinators. There are also conservation efforts for some pollinators led by the University of Novi Sad. This year, Serbia launched another research project named "honeybees of Serbia", conducted by the Institute for Biological Research, to assess the species vulnerabilities and drivers of colony loss.

## 4 Conclusions

The regional workshop provided the EPPA beneficiaries the forum to discuss and exchange experiences regarding two cutting edge policy developments at European level, representing two significant challenges: invasive alien species as a threat to biodiversity and economic sustainability and the decline in pollinators, itself linked with invasive alien species, land use and land management, pathogen spread, and climate change.

The beneficiaries had the opportunity to present their achievement in both topics in terms of legislative development and support to scientific research, especially regarding the pollinator's conservation status and threats. The EC provided detailed information EU policy framework on invasive alien species, which includes the EU biodiversity strategy for 2030 and the IAS Regulation. The Joint Research Centre presented the EU wide tool: European Alien Species Information Network (EASIN), a platform to exchange information and to officially notify the EU and its Member States of IAS threats and measures. Finally, the workshop presented the current scientific debate around IAS and pollinators based on the experience of EU Member States scientific institutions and the IPBES. That debate was supplemented with EU Member States experiences in reacting and managing to invasive species and initiatives to research and conserve pollinators.

### Workshop outputs

The workshop's main outputs were:



- Enhanced understanding of the topic, policy and legislation, challenges, and current practices
- Enhanced exchange of experiences within the beneficiary region and between the beneficiary region and EU Member states
- Established contacts between nature conservation practitioners, resulting in better cooperation
- Better capacity to deal with the challenges related to invasive alien species
- Identified key issues for implementation of the IAS Regulation and pollinator protection measures in the beneficiaries

## 5 Evaluation

The participants were asked to evaluate the workshop by TAIEX using an online survey after the event. The evaluation results are presented below in a summary table.



				No. Responses	Expert Score	Yes / Excellent	No / Good
80216	Workshop - participant - A. Questions	1	Was the workshop carried out according to the agenda?	19	-	19 (100%)	-
		2	Was the programme well structured?	19	-	18 (95%)	-
		3	Were the key issues related to the topics addressed?	19	-	18 (95%)	-
		4	Did the workshop enable you to improve your knowledge?	19	-	16 (84%)	-
		5	Was enough time allowed for questions and discussions?	19	-	19 (100%)	-
		7	Do you expect any follow-up based on the results of the workshop (new legislation, new administrative approach, etc.)?	19	-	17 (89%)	2 (11%)
		8	Do you think that further TAIEX - %pr_c_abbreviation% assistance is needed (workshop, expert mission, study visit, assessment mission) on the topic of this workshop?	19	-	17 (89%)	2 (11%)
		Workshop - participant - B. Expert ratings	-	Mr. Constantin, Gheorghe - Speaker MS	17	89.7%	12 (71%)
-	Mr. Dimovski, Mihail - Other speakers		17	98.52%	16 (94%)	1 (6%)	
-	Mr. Barina, Zoltán - Speaker MS		17	94.11%	14 (82%)	2 (12%)	
-	Mr. Dedov, Ivaylo - Speaker MS		17	92.64%	13 (76%)	3 (18%)	
-	Mr. Fehér, Zoltán - Speaker MS		17	94.11%	14 (82%)	2 (12%)	
-	Mr. Feiler, Jozsef - Speaker EU		17	92.64%	12 (71%)	5 (29%)	
-	Mr. Flevaris, Spyridon - Speaker EU		17	92.64%	12 (71%)	5 (29%)	
-	Mr. Kovacevic, Vujadin - Speaker EU		17	95.58%	14 (82%)	3 (18%)	
-	Mr. Manta, Nicolae - Speaker MS		17	92.64%	13 (76%)	3 (18%)	
-	Mr. Mazza, Leonardo - Speaker EU		17	97.05%	15 (88%)	2 (12%)	
-	Mr. Pauchard, Anibal - Other speakers		17	92.64%	13 (76%)	3 (18%)	
-	Mr. Stoett, Peter - Other speakers		17	94.11%	14 (82%)	2 (12%)	
-	Ms. Cardoso, Ana Cristina - Speaker EU		17	95.58%	14 (82%)	3 (18%)	



				No. Responses	Expert Score	Yes / Excellent	No / Good	Partially / Satisfactory
80216	Workshop - participant - B. Expert ratings	-	Ms. Cardoso, Ana Cristina - Speaker EU	17	95.58%	14 (82%)	3 (18%)	-
			Ms. Cioaca, Doina - Speaker MS	17	92.64%	13 (76%)	3 (18%)	1 (6%)
			Ms. Gajda, Anna - Speaker MS	17	98.52%	16 (94%)	1 (6%)	-
			Ms. Kovács-Hostyánszki, Anikó - Speaker MS	17	97.05%	15 (88%)	2 (12%)	-
Workshop - participant - C. Logistic Ratings	1	2	Conference venue	4	-	2 (50%)	1 (25%)	1 (25%)
		3	Interpretation	3	-	2 (67%)	1 (33%)	-
		3	Hotel	2	-	1 (50%)	1 (50%)	-
		4	Flight	2	-	1 (50%)	1 (50%)	-
		5	Catering	2	-	1 (50%)	1 (50%)	-
Workshop - participant - D. Comments	-	-	/	-	-	-	-	-
			I am satisfied with the level of the organization of TAIEX EPPA Regional Workshop on Alien Species and Pollination. Agenda of the Workshop and Speakers presentation's as well as discussions of participants were very helpful for me.	-	-	-	-	-
			I thank all the experts for their knowledge that they share with us.	-	-	-	-	-
			Josef Failer prepare his input but could not present it Thank you for the organisation. It was full of information.	-	-	-	-	-
Workshop - speaker - A. Questions	1	1	Did you receive all the information necessary for the preparation of your contribution?	13	-	13 (100%)	-	-
		2	Has the overall aim of the workshop been achieved?	13	-	13 (100%)	-	-
		3	Was the agenda well structured?	13	-	13 (100%)	-	-
		4	Were the participants present throughout the scheduled workshop?	13	-	13 (100%)	-	-
		5	Was the beneficiary represented by the appropriate participants?	13	-	12 (92%)	-	1 (8%)



				No. Responses	Expert Score	Yes / Excellent	No / Good	Partially / Satisfactory	
80216	Workshop - participant - D. Comments	-	I thank all the experts for their knowledge that they share with us.	-	-	-	-	-	
		-	Josef Failer prepare his input but could not present it	-	-	-	-	-	
		-	Thank you for the organisation. It was full of information.	-	-	-	-	-	
	Workshop - speaker - A. Questions	1	1	Did you receive all the information necessary for the preparation of your contribution?	13	-	13 (100%)	-	-
		2	2	Has the overall aim of the workshop been achieved?	13	-	13 (100%)	-	-
		3	3	Was the agenda well structured?	13	-	13 (100%)	-	-
		4	4	Were the participants present throughout the scheduled workshop?	13	-	13 (100%)	-	-
		5	5	Was the beneficiary represented by the appropriate participants?	13	-	12 (92%)	-	1 (8%)
		6	6	Did the participants actively take part in the discussions?	13	-	6 (46%)	-	7 (54%)
		7	7	Do you expect that the beneficiary will undertake follow-up based on the results of the workshop (new legislation, new administrative approach etc.)	13	-	7 (54%)	-	-
		8	8	Do you think that the beneficiary needs further TAIEX - %pr_c_abbreviation% assistance (workshop, expert mission, study visit, assessment mission) on the topic of this workshop?	13	-	12 (92%)	1 (8%)	-
		9	9	Would you be ready to participate in future TAIEX - %pr_c_abbreviation% workshops?	13	-	13 (100%)	-	-
	Workshop - speaker - C. Logistic Ratings	1	1	Conference venue	3	-	3 (100%)	-	-
		2	2	Interpretation	3	-	3 (100%)	-	-
	Workshop - speaker - D. Comments	-	-	It was online	-	-	-	-	-
-		-	It was very good through videoconferencing	-	-	-	-	-	
-		-	This was an online conference	-	-	-	-	-	
-		-	it was an online workshop	-	-	-	-	-	
-		-	the event was online	-	-	-	-	-	

## Endnotes

\* This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.



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