



News release

Experts Warn Pollinator Species, Vital to World Food Supplies, Are In Decline, Face Major Threats

1st Global Assessment Details Options for Pollinator Protections

Kuala Lumpur – 26 February 2016 – A growing number of pollinator species worldwide are being driven towards extinction by diverse pressures, many of them human-made, threatening millions of livelihoods and hundreds of billions of dollars' worth of food supplies, according to the first global assessment of pollinators.

However, the assessment, a two-year study conducted and released today by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), also highlights a number of ways to effectively safeguard pollinator populations.

The assessment, titled *Thematic Assessment of Pollinators, Pollination and Food Production* and the first ever issued by IPBES, is a groundbreaking effort to better understand and manage a critical element of the global ecosystem. It is also the first assessment of its kind that is based on the available knowledge from science and indigenous and local knowledge systems.

IPBES was founded four years ago with 124 member nations to form a crucial intersection between international scientific understanding and public policymaking.

Pollinators are economically and socially important

“Pollinators are important contributors to world food production and nutritional security,” said Vera Lucia Imperatriz-Fonseca, Ph.D., co-chair of the assessment and Senior Professor at the University of São Paulo. “Their health is directly linked to our own well-being.”

There are about 20,000 species of wild bees alone, plus some species of butterflies, moths, wasps, beetles, birds, bats and other vertebrates that contribute to pollination.

Pollinated crops include those that provide fruit, vegetables, seeds, nuts and oils. Many of these are important dietary sources of vitamins and minerals, without which the risks of malnutrition might be expected to increase. Several crops also represent

an important source of income in developing countries from, for example, the production of coffee and cocoa.

“Without pollinators, many of us would no longer be able to enjoy coffee, chocolate and apples, among many other foods that are part of our daily lives,” said Simon Potts, Ph.D., the other assessment co-chair and Professor of Biodiversity and Ecosystem Services, School of Agriculture, Policy and Development, University of Reading, United Kingdom.

More than three-quarters of the world's food crops rely at least in part on pollination by insects and other animals.

Between US\$235 billion and US\$577 billion worth of annual global food production relies on direct contributions by pollinators.

The volume of agricultural production dependent on animal pollination has increased by 300 per cent over the past 50 years, but pollinator-dependent crops show lower growth and stability in yield than crops that do not depend on pollinators.

Nearly 90 per cent of all wild flowering plants depend at least to some extent on animal pollination.

Various factors affecting pollinators

The assessment found that an estimated 16 per cent of vertebrate pollinators are threatened with global extinction – increasing to 30 per cent for island species – with a trend towards more extinctions.

Although most insect pollinators have not been assessed at a global level, regional and national assessments indicate high levels of threat, particularly for bees and butterflies, with often more than 40 per cent of invertebrate species threatened locally.

“Wild pollinators in certain regions, especially bees and butterflies, are being threatened by a variety of factors,” said IPBES Vice-Chair, Sir Robert Watson. “The decline in their populations is primarily due to changes in land use, intensive

By the numbers	
20,000 –	Number of species of wild bees. There are also some species of butterflies, moths, wasps, beetles, birds, bats and other vertebrates that contribute to pollination.
75% –	Percentage of the world's food crops that depend at least in part on pollination.
US\$235 billion–US\$577 billion –	Annual value of global crops directly affected by pollinators.
300% --	Increase in volume of agricultural production dependent on animal pollination in the past 50 years.
Almost 90% --	Percentage of wild flowering plants that depend to some extent on animal pollination.
1.6 million tonnes –	Annual honey production from the western honeybee.
16.5% --	Percentage of vertebrate pollinators threatened with extinction globally.
+40% –	Percentage of invertebrate pollinator species – particularly bees and butterflies – facing extinction.

agricultural practices and pesticide use, alien invasive species, pathogens and climate change.”

Declines in regional wild pollinator populations have been confirmed for North Western Europe and North America. Although local cases of decline were recorded in other parts of the world, data are too sparse to draw broad conclusions.

New evidence from a field study in Sweden shows that the use of a neonicotinoid insecticide has a negative effect on the reproduction of wild bees, but no effect on honeybee colonies was detected.

Pests and diseases pose a special threat to managed bees, but the risk can be reduced through better disease detection and management, and regulations relating to trade and movement of bees.

Genetically modified crops are usually either tolerant to herbicides or resistant to pest insects. The former reduce the availability of weeds, which supply food for pollinators. The latter often result in lower use of insecticides and may reduce pressure on beneficial insects, including pollinators. However, the sub-lethal and indirect effects of GM crops on a range of pollinators are poorly understood.

Numerous options exist to protect pollinators

“The good news is that a number of steps can be taken to reduce the risks to pollinators, and the use of indigenous and local knowledge is important in this respect,” said Zakri Abdul Hamid, the Founding Chair of IPBES since his election at the first meeting of the organization in 2012.

These steps include the promotion of sustainable agriculture, which helps to diversify the agricultural landscape and makes use of ecological processes as part of food production.

Specific options include:

- Planting strips or patches of wild flowers, and maintaining or creating greater diversity of pollinator habitats at the landscape-scale;
- Decreasing exposure of pollinators to pesticides by reducing their usage, seeking alternative forms of pest control, and adopting a range of specific application practices, including technologies to reduce pesticide drift; and
- Improving managed bee husbandry for pathogen control, coupled with better regulation of trade and use of commercial pollinators.

Additional findings

- A high diversity of wild pollinators contributes to increased stability in pollination, even when managed bees are present in high numbers.
- A number of non-food crops also depend on pollinators. They provide biofuel in the form of canola oil, fibre in the form of cotton, medicines, timber and products that are culturally significant.
- The western honeybee is the most widespread managed pollinator in the world, producing an estimated 1.6 million tonnes of honey annually.
- Crop yields depend on both wild and managed species.
- The number of beehives has increased globally over the past 50 years, but a decrease in hives has occurred in many European and North American countries.
- Climate change has led to changes in the distribution of many pollinating bumblebees and butterflies.

The IPBES assessment has critically evaluated an enormous body of knowledge on pollinators, pollination and food production to ensure decision makers have access to the highest quality information. The assessment was compiled by a team of 77 experts.

Quotes from supporting organizations

"The growing threat to pollinators, which play an important role in food security, provides another compelling example of how connected people are to our environment, and how deeply entwined our fate is with that of the natural world. As we work towards food security, it is important to approach the challenge with a consideration of the environmental impacts that drive the issue. Sustainable development, including improving food security for the world's population, necessitates an approach that embraces the environment." -- *Achim Steiner, Executive Director, United Nations Environment Programme (UNEP)*

"Pollination services are an 'agricultural input' that ensure the production of crops. All farmers, especially family farmers and smallholders around the world, benefit from these services. Improving pollinator density and diversity has a direct positive impact on crop yields, consequently promoting food and nutrition security. Hence, enhancing pollinator services is important for achieving the Sustainable Development Goals, as well as for helping family farmers' adaptation to climate change." -- *José Graziano da Silva, Director-General, Food and Agriculture Organization of the United Nations (FAO)*

"The complex and integrated development challenges we face today demand that decision-making be based on sound science and take into account indigenous and local knowledge. Embracing science in areas such as pollination will contribute to

better informed policy choices that will protect ecosystem services that are important for both food security and poverty eradication. UNDP is proactively contributing to promoting dialogue between scientists, policymakers and practitioners on this and related topics, supporting countries in the implementation of the 2030 Agenda for Sustainable Development.” -- *Nik Sekhran, Director/Chief of Profession, Sustainable Development, Bureau for Policy and Programme Support, United Nations Development Programme (UNDP)*

About IPBES

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) is similar to the Intergovernmental Panel on Climate Change (IPCC). It was established in April 2012 as an independent intergovernmental body for assessing the state of the planet's biodiversity, its ecosystems and the essential services they provide to society. IPBES is open to all States Members of the United Nations and currently has 124 members.

IPBES assessments provide policymakers with scientifically credible and independent information with which to make informed decisions about how to protect biodiversity and ecosystem services. The assessments also put forth methods to interpret the findings and reflect the complex relationships between biodiversity, ecosystem services and people. Although IPBES assessments lay out various policy options, they do not make policy recommendations.

IPBES assessments are conducted by leading experts who synthesize, review, assess and critically evaluate relevant information and knowledge generated worldwide by governments, academia, scientific organizations, non-governmental organizations and indigenous and local communities. IPBES experts, who belong to organizations, institutions and the private sector from around the world, volunteer their time. They are selected based on nominations from governments and interested organizations. There are currently about 1,000 experts, from all regions of the world, contributing to the work of IPBES.

The work of IPBES is supported by a secretariat based in Bonn, Germany. It operates under the auspices of four United Nations programmes/organizations: the United Nations Environment Programme (UNEP), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Development Programme (UNDP).

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Four examples of food crops that depend on pollinators, and their financial value

Combined total world crop value: US\$71.5 billion per year

Chocolate (cocoa beans)

Dependency: essential

World crop value: US\$5.7 billion per year

Pollinator: cecidomyiid midges, ceratopogonid midges

Apples

Dependency: great

World crop value: US\$33.5 billion per year

Pollinator: honeybee (*Apis mellifera*), Asiatic honeybee (*Apis cerana*), mining bee (*Andrena spp*), bumblebee (*Bombus spp*), hornfaced bee (*Osmia cornifrons*)

Mangos

Dependency: great

World crop value: US\$14.8 billion per year

Pollinator: honeybee (*Apis sp.*), stingless bees (*Trigona sp.*), flies, ants, wasps

Almonds

Dependency: great

World crop value: US\$3.5 billion per year

Pollinator: honeybee (*Apis mellifera*), bumblebee (*Bombus impatiens*), hornfaced bee (*Osmia cornuta*)