



**CONVENTION ON  
MIGRATORY  
SPECIES**

UNEP/CMS/COP14/Doc.30.4.2/Rev.1

12 December 2023

Original: English

14<sup>th</sup> MEETING OF THE CONFERENCE OF THE PARTIES  
Samarkand, Uzbekistan, 12 – 17 February 2024  
Agenda Item 30.4

**INSECT DECLINE AND ITS THREAT TO MIGRATORY INSECTIVOROUS ANIMAL  
POPULATIONS**

*(Prepared by the Secretariat)*

Summary:

This document reports on progress in the implementation of Decision 13.129 *Insect Decline and its Threat to Migratory Insectivorous Animal Populations*. The document proposes draft Decisions for further work on this topic.

The document also includes a summary of a report on the main factors driving the established loss of insect biomass and the cascading effects on migratory insectivorous animal populations. The full report is provided as an information document: [UNEP/CMS/COP14/Inf.30.4.2](https://www.unep.org/cms/cop14/inf30.4.2).

Rev.1 corrects a grammatical error in the title of the document and adds in paragraph 14 of the document the deletion of Decision 13.129 as a recommended action.

## INSECT DECLINE AND ITS THREATS TO MIGRATORY INSECTIVOROUS ANIMAL POPULATIONS

### Background

1. There is consensus among the scientific community on the dramatic declines of insect biodiversity and biomass in many parts of the world. This is backed up by the IPBES global assessment report on biodiversity and ecosystem services,<sup>1</sup> which also highlights the rapid declines in insect populations and abundance.
2. Insect biodiversity plays a vital role in the proper functioning of many of the world's ecosystems and their services. Insects are an essential food resource for numerous vertebrate species that feed on them and rely on them for rearing their offspring, many of which are migratory species. Insect decline can therefore have a significant impact on a range of migratory insectivorous species, especially bird and bat species.
3. However, there are still important gaps in our understanding of the conservation status, population trends and threats to insect species, and the impacts of these on migratory species that rely on them, particularly in some regions. Filling these knowledge gaps and analysing in detail the different drivers of insect decline is important for identifying priority actions that can be taken to address these losses.
4. To this end, the Conference of the Parties, at its 13<sup>th</sup> meeting (COP13, 2020), adopted [Resolution 13.6 \*Insect Decline and its Threat to Migratory Insectivorous Animal Populations\*](#), which, inter alia, calls upon the Parties to encourage and support scientific research on the impact of insect decline on migratory insectivorous animal populations. The Resolution also calls upon the Parties to promote continued cooperation and collaboration between scientists, professionals, stakeholders and international bodies whose work is related to insect decline.
5. COP13 also adopted [Decision 13.129 \*Insect Decline and its Threat to Migratory Insectivorous Animal Populations\*](#), which reads as follows:

#### **13.129 Directed to the Scientific Council**

*The Scientific Council is requested to consider, subject to the availability of resources, in the meetings of its Sessional Committee after the 13th meeting of the Conference of the Parties (COP13), the following topics:*

- a) *identifying and prioritizing the main factors causing the established loss of insect biomass;*
- b) *collecting relevant information regarding the current insect decline, and assessing its cascading effects on migratory insectivorous animal species;*
- c) *developing guidelines for the most urgent or prioritized actions identified;*
- d) *publishing any such guidelines following circulation to all Parties for approval.*

---

<sup>1</sup> IPBES (2019) *Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES Secretariat, Bonn, Germany. 1148 pages. <https://doi.org/10.5281/zenodo.3831673>

### Activities to implement Decision 13.129

6. The 5<sup>th</sup> meeting of the Sessional Committee of the Scientific Council (ScC-SC5, 2021) took note of the mandate in Decision 13.129 and included insect decline in its Programme of Work for the intersessional period between COP13 and COP14. Activities foreseen included the preparation of a literature review covering items a) and b) of Decision 13.129, to provide a basis for further consideration of the topic. The Secretariat sought funding to support the production of the review.
7. In April 2023, thanks to voluntary contributions from the Governments of Germany and Australia, the Secretariat commissioned the Leibniz Institute for the Analysis of Biodiversity Change (LIB) to produce a report on the impacts of insect decline on migratory insectivorous animals.
8. An early draft was submitted to ScC-SC6 (2023) for review and to inform the final version of the report. The Sessional Committee welcomed the report and requested the Secretariat to finalize it, taking into account, as appropriate, the comments made at ScC-SC6 and submitted in writing to the Secretariat after the meeting.
9. Noting that aspects of Decision 13.129 on insect decline may warrant additional work, the Scientific Council, at ScC-SC6, requested the Secretariat to prepare a document for consideration by COP14, which would include a proposal directed to the Scientific Council to continue aspects of Decision 13.129, subject to the availability of resources, including work on the following topics:
  - i. further identifying and prioritizing the main factors causing the established loss of insect biomass for species not covered by the current report, in particular fish;
  - ii. collecting additional relevant information regarding the current insect decline, and assessing its cascading effects on migratory insectivorous animal species;
  - iii. developing guidelines for the most urgent or prioritized actions identified; and
  - iv. publishing any such guidelines following circulation to all Parties for approval.
10. The Leibniz Institute for the Analysis of Biodiversity Change incorporated a new section on impact of insect decline on migratory insectivorous fish, addressed the comments received by ScC-SC6 and finalized the report on behalf of the Secretariat. The report provides a review of the relevant scientific literature assessing the status of insect decline populations, the main factors driving insect decline, and the direct and indirect impacts of these on migratory insectivorous animal species.

### Discussion and analysis

11. Following the mandate given to the Secretariat by the Scientific Council at ScC-SC6, the Secretariat has prepared this document for consideration by COP14.
12. Annex 1 contains key findings of the report and its recommendations, while the full report is presented as an information document [UNEP/CMS/COP14/Inf.30.4.2](https://www.unep.org/cms/cop14/inf30.4.2).
13. The Secretariat prepared draft Decisions, contained in Annex 2 of this document, building on Decision 13.129 and addressing the request from the Scientific Council.

Recommended actions:

14. The Conference of the Parties is recommended to:
  - a) take note of the summary of the report, as contained in Annex 1 of this document;
  - b) adopt the draft Decisions, as contained in Annex 2 of this document;
  - c) delete Decision 13.129.

**ANNEX 1**

**INSECT DECLINE AND ITS THREAT TO MIGRATORY INSECTIVOROUS ANIMAL  
POPULATIONS**

**- SUMMARY DOCUMENT**

**Prepared for:** The Secretariat of the Convention on the Conservation of Migratory Species  
of Wild Animals

**Author:** Mr. Jonas Rochlitz, a scientist from LIB, under the supervision of Dr. David Ott.

*NB: The complete report is presented as an Information document in a separate file [here](#).*

## KEY MESSAGES

- 1) **Insect decline represents one of the threats that contribute to population decline of many CMS-listed migratory insectivorous species.**
- 2) **The global insect decline affects migratory insectivorous species by reducing the availability of food during migration and at other stages of their lifecycles.**
  - a) Insectivorous species rely on insects as their main food source. The decline of insects that make up the food resources of insectivorous animals can affect the survival of entire populations of insectivorous species.
  - b) Migratory insectivorous species are threatened by changes in insect biomass, abundance or diversity.
  - c) Insect decline is known to be highly variable between insect orders and ecosystems and between terrestrial and aquatic environments.
- 3) **Land-use change, climate change and pollution are the main drivers of insect decline worldwide; these drivers are often intertwined and may act simultaneously.**
  - a) The main factors contributing to the decline in insects that are important food for birds are land use by agriculture and certain forest management practices, as well as pollution from agricultural effluents, and shifts and alterations in habitats resulting from climate change. These threats are associated with reduced food availability, lower body-condition of birds associated with sub-optimal feeding and migratory and stop-over area shifts.
  - b) The main threats affecting the bat species are unsustainable management practices, such as the clear-cutting of forests, artificial light pollution at night and climate change, potentially triggering higher levels of bat activity in winter. These threats cause - directly or indirectly - a reduction in food availability for bats by reducing the availability of insect habitat (e.g. clear-cutting) and the quantity of insects (e.g. pollution). The scarcity of insects in many areas in Europe during winter may lead to high energetic foraging costs for insectivorous bats.
  - c) The assessed fish species are threatened by insect decline as a result of modifications to natural systems and pollution. Natural system modifications, such as dams, are suspected to cause a reduction in aquatic insect abundance due to the artificial manipulation of the physical properties of the water. Water pollution can hinder aquatic insect larval development or lead to a decrease in adult insect abundance as a result of the lethal effects of polluted water.
- 4) **Insects and the migratory insectivorous animals feeding on them are important for ecosystem functioning** and provide critical ecosystem services, such as pollination.
- 5) **There are gaps in the understanding of the impacts of insect decline on migratory insectivorous species and quantifying these threats is difficult.** More information is needed on the population status and trends for a number of insectivorous migratory species, in particular bats.

## RECOMMENDATIONS

- 1) **Put in place insect conservation measures** to ensure the availability of food for migratory insectivorous species:
  - a) **Align policies and management measures with the objective of reducing threats such as unsustainable land use changes, climate change and water, soil and light pollution** as the main causes of the global insect decline affecting insectivorous migratory species.
  - b) **Promote heterogenetic agricultural landscapes** to improve food availability and habitat heterogeneity for migratory insectivorous animals throughout their entire range.
  - c) **Create, maintain, connect and protect habitats** for insects, for the benefit of migratory insectivorous species, and protect them from the impacts of climate change.
  - d) **Reduce pollution of terrestrial and aquatic ecosystems** to ensure the availability of food for migratory insectivorous species before, during and after their migration.
- 2) **Intensify insect monitoring**, prioritizing sites that are important habitats for breeding or stopovers during migration.
- 3) **Support global insect monitoring efforts and exchange of data.**
- 4) **Work with international organizations, governments, NGOs, the private sector and other stakeholders** to improve habitat heterogeneity and connectivity, thus contributing to increased insect food availability.
- 5) **Develop guidelines for the most urgent or prioritized actions identified**, addressing the cascading effects of insect decline on migratory insectivorous species. While the guidelines should be globally applicable, they could also define region-specific measures.

DRAFT DECISIONS

**INSECT DECLINE AND ITS THREAT TO MIGRATORY INSECTIVOROUS ANIMAL POPULATIONS**

***Directed to the Scientific Council***

- 14.AA The Scientific Council is requested, subject to the availability of resources, to consider and, as appropriate, to provide recommendations to COP15 on:
- a) the findings of the report “Insect Decline and its Threat to Migratory Insectivorous Animal Populations”;
  - b) further identifying and prioritizing the main factors causing the established loss of insect biomass not covered by the current report;
  - c) collecting additional relevant information regarding the current insect decline, and assessing its cascading effects on migratory insectivorous animal species, including the role of insects in connectivity;
  - d) developing guidelines for the most urgent or prioritized actions identified.

***Directed to the Secretariat***

- 14.BB The Secretariat is requested, subject to the availability of resources, to:
- a) disseminate the report on “Insect Decline and its Threat to Migratory Insectivorous Animal Populations” to relevant stakeholders, and raise awareness of its findings and recommendations in appropriate forums;
  - b) support the Scientific Council in reviewing the findings and recommendations of the report and in implementing any follow-up actions as part of its programme of work.