



**CONVENTION ON
MIGRATORY
SPECIES**

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Agenda Item 26.4

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

(Prepared by the European Union)

Summary:

This document includes a draft Resolution and a draft Decision on insect decline and its threats to migratory insectivorous animal populations.

The draft Resolution calls for analysis and action concerning the dramatic insect decline and related cascading effects on migratory insectivorous species. It complements Article VII, paragraph 5 (g) of the Convention text calling on the Conference of the Parties to “*make recommendations to the Parties for improving the effectiveness of this Convention*”.

The draft Decision requests the Scientific Council to assess the most important factors causing the insect decline, evaluate its cascading effects on migratory insectivorous species and to consider the development of guidelines to improve the situation.

Implementation of the Resolution and the Decision will contribute towards meeting targets 1, 7, and 15 of the Strategic Plan for Migratory Species 2015-2023.

The Conference of the Parties is recommended to consider the draft Resolution and the draft Decision for adoption.

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Background

1. There is consensus in the scientific community about the dramatic declines of insect biodiversity and biomass in many parts of the world, as backed by the IPBES global assessment report on biodiversity and ecosystem services, which also highlights the rapid declines in insect populations and abundance.
2. Generally, half of the insect species are rapidly declining and a third are being threatened with extinction. Most worryingly, these declines comprise not only rare specialist species with narrow ecological requirements or restricted habitats, but also generalist species, which were once common and widespread. The meta-analysis conducted by Sanchez-Bayo and Wyckhuys concludes that the dramatic insect decline may lead to the extinction of 40 per cent of the world's insect species over the next few decades¹. Furthermore, some studies also reveal long-term loss in insect biomass on local level, up to a 76 per cent decline in protected areas (despite the absence of land-use change)² and between 78-98 per cent in pristine habitats³.
3. Insect biodiversity plays a vital role in the correct functioning for many of the world's ecosystems and their services. Additionally, insects are essential as food resource for many vertebrate species that feed on them or depend on them for rearing their offspring. Many of these insectivorous vertebrates are migratory species. In this sense, insect decline can equally impact numerous migratory insectivorous species, especially bat and bird species, as different studies indicate^{4,5,6}.
4. The above-mentioned meta-analysis¹ highlights the main drivers causing insect decline, in order of importance: i) habitat change and loss; ii) pollution, mainly by synthetic pesticides and fertilizers; iii) biological factors, including pathogens and introduced species; and iv) climate change.

Issues

5. The scientific community and nature conservationists have for years mainly focussed on the worldwide biodiversity reduction undergone by many terrestrial and aquatic vertebrates. It is only recently, that similar concerns have been raised about invertebrate taxa, and particularly insects. It is therefore of high importance for the Convention to assess the topic of the dramatic insect decline and related cascading effects as a major threat to migratory insectivorous species.

1 Sanchez-Bayo & Wyckhuys (2019): Worldwide decline of the entomofauna: A review of its drivers. *Biol. Cons.*

2 Hallmann et al. (2017): More than 75% decline over 27 years in total flying insect biomass in protected areas. *PLoS One* 12, e0185809.

3 Lister, B.C., Garcia, A. (2018). Climate-driven declines in arthropod abundance restructure a rainforest food web. *Proc. Natl. Acad. Sci.*

4 Hallmann, C.A., Foppen, R.P.B., van Turnhout, C.A.M., de Kroon, H., Jongejans, E., 2014. Declines in insectivorous birds are associated with high neonicotinoid concentrations. *Nature* 511, 341–343.

5 Poulin, B., Lefebvre, G., Paz, L., 2010. Red flag for green spray: adverse trophic effects of Bti on breeding birds. *J. Appl. Ecol.* 47, 884–889.

6 Wickramasinghe, L.P., Harris, S., Jones, G., Vaughan, N., 2003. Bat activity and species richness on organic and conventional farms: impact of agricultural intensification. *J. Appl. Ecol.* 40, 984–993.

6. Although many recent scientific studies confirm the general worldwide trends in insect biodiversity and biomass, knowledge gaps still remain about the conservation status and population trends in insects for some regions. Furthermore, as some studies indicate, trends in insect declines vary among different areas and habitats, leading to the conclusion that a complex interaction between different factors influences these trends. Filling these knowledge gaps and analysing in detail the different drivers affecting insects and migratory insectivorous species will be important to take concerted actions, in order to improve the conservation status of the species targeted by the Convention, in cooperation and collaboration between relevant scientists, professionals, stakeholders and international bodies.

Discussion and analysis

7. Having a common understanding about the drivers of insect decline will be key to improve the population status of migratory insectivorous species targeted by the Convention. The scientific research and collection of all relevant information concerning the current insect decline will help to fill the knowledge gaps. The dissemination of related guidelines for Parties will play an important role to support and further strengthen the ongoing knowledge exchange within the Convention and with other multilateral environment agreements.
8. Addressing the main drivers of insect decline and thus the negative effects on migratory insectivorous species by concrete actions taken and promoted by the Parties in a coordinated approach with all stakeholders, will help the Conference of the Parties to contribute to an improvement of the conservation status of the targeted species.
9. The Scientific Council is requested to assess the most important factors causing the insect decline and evaluate its cascading effects on migratory insectivorous species. Further, the Scientific Council is requested to consider the development of guidelines to improve the situation in its first meeting of the Sessional Committee after COP13.

Recommended actions

10. The Conference of the Parties is recommended to:
 - a) adopt the draft Resolution contained in Annex 1 to this document;
 - b) adopt the draft Decision contained in Annex 2 to this document.

DRAFT RESOLUTION

**INSECT DECLINE AND ITS THREAT TO
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Recalling that Article II of the Convention acknowledges the need to take action to avoid any migratory species becoming endangered,

Deeply concerned about the dramatic declines in insect biomass and the potential negative effects on migratory insectivorous animal populations, such as many bird and bat species,

Acknowledging Article VII of the Convention on Migratory Species that the Conference of the Parties may make recommendations to the Parties for improving the effectiveness of the convention,

Aware that environmental impact assessment is foreseen in other conventions concerned with biodiversity conservation, and in CMS Agreements,

Recalling EUROBATS Resolution 8.13 on Insect Decline as a Threat to Bat Populations in Europe, and the urgent need for guidelines for prioritized action,

*The Conference of the Parties to the
Convention on the Conservation of Migratory Species of Wild Animals*

1. *Calls upon* the Parties, subject to the availability of resources, to:
 - a) Encourage and support scientific research on the impact of insect decline on migratory insectivorous animal populations, e.g. birds and bats;
 - b) Avoid the effects of pesticide use on non-target insects as food resource of migratory insectivores in and around areas that are important for the conservation of these species;
 - c) Promote action programmes for the conservation of insects and restoration of their habitats in consideration of their vulnerability, aiming at the known causes of insect decline;
 - d) In general, take a precautionary approach with respect to the use of pesticides;
 - e) Raise awareness regarding the concerns mentioned above with land managers and other stakeholders;
 - f) Promote continued cooperation and collaboration between scientists, professionals, stakeholders and international bodies, whose work is related to insect decline.

DRAFT DECISION

**INSECT DECLINE AND ITS THREAT TO
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Directed to the Scientific Council

- 13.AA The Scientific Council shall consider, in its first meeting of the Sessional Committee after COP13, the following topics:
- a) Identifying the main factors causing the established loss of insect biomass;
 - b) Collecting relevant information regarding the current insect decline, and assess its potential 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.