

## 25<sup>th</sup> Meeting of the Advisory Committee

Videoconference 30 April 2021

### Report of the Intersessional Working Group on Insect Decline as a Threat to Bat Populations in Europe



Due to pandemic, the work progress in this IWG was lower than expected. Nevertheless, the compilation of main literature of the different topics could be carried on. A meeting of the different sub-group conveners took place and for the different topics a working agenda could be established. Hopefully, a first draft for approval to all members of the group can be expected for the next AC.

#### **Nutritional requirements by food to bats**

Compilation of physiological publication on nutritional requirements is taking place.

#### **Knowledge about the diet of bats**

Diet will be stated for each ecoregion included in the area of the EUROBATS Agreement. Only the main arthropod groups, defined by a threshold of percentage of prey, will be listed in order to exclude minor diet items. Literature on the diet of all bat species is going to be compiled during next summer. Additional support will be requested to the authors of the bat chapters of the “Handbook of mammals of Europe”.

#### **Main reasons of insect biomass loss/ecoregions and major threats resulting from insect biomass loss to bats**

The reasons for the decline in insect biomass and insect species diversity are manifold and complex. The main causes include the use of pesticides, the loss and qualitative deterioration of habitats, the lack of structural diversity, the introduction of pollutants into soils and waters, and light pollution<sup>1</sup>.

The decline of both insect biomass and insect biodiversity has far-reaching consequences for the environment and us humans. Insects are present in all land and freshwater ecosystems and perform an equally large variety of ecosystem functions.

Insects continue to be an important food source for other arthropods and numerous other animal groups, which means that the insect decline directly affects other organisms in

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<sup>1</sup> BfN (2017) Agrar-Report; BfN (2015), Artenschutz-Report; Langevelde et al. (2017)

ecosystems. The decline of several bat species has been linked, among others, to a lack of food availability.

Compilation of good practice examples/projects increasing insect biomass

Compilation of good practice examples for essential arthropod groups for bats is continued and shall result in recommendations practical conservation schemes and actions to protect feeding habitats of endangered bat species.

An obvious success is the fact, that the present resolution of EUROBATS served as template for a similar resolution 13.4 at CMS COP13 in Gandhinagar, India in February 2020: "Insect decline and threats to migratory insectivorous species"<sup>2</sup> brought to adoption with the support of Germany, UK, Switzerland and Israel.

### Draft working plan IWG Insect decline

Topic IWG Insect decline	Coordinators / members
<p><b>1. Nutritional requirements by food to bats (selected EUROBAT species/bat guilds/ecoregion)</b></p> <ul style="list-style-type: none"> <li>○ quantitative requirements</li> <li>○ qualitative requirements/need of diversity</li> </ul>	<p><b>Markus Dietz,</b> Libuše Vlasáková</p>
<p><b>2. Knowledge about the diet of bats (EUROBAT species/ecoregions/primary hunting strategy)</b></p> <ul style="list-style-type: none"> <li>○ by arthropod genera</li> <li>○ by habitat (biogeographic regions)</li> </ul> <p>compilation of literature overview by table (or by species?) e.g. 5 major arthropod or &gt; 10% occurrence percentage genera/species (biogeographic regions?) need of species-specific research</p>	<p><b>Stéphane Aulagnier,</b> Orly Razgour, Hugo Rebelo, Kati Suominen, Daniela Hamidović, Ludo Holsbeek, Ibrahim Raşit Bilgin</p>
<p><b>3. Main reasons of insect biomass loss/ecoregions</b></p> <ul style="list-style-type: none"> <li>○ habitat loss</li> <li>○ farming/forestry pesticides especially insecticides and other contaminants (specific role of neonics?, heavy metals, ...)</li> <li>○ veterinary / pharmacy products (ivermectin &amp; co)</li> <li>○ water pollution</li> <li>○ loss/changes (by species/by time of the year...) due to climate change?</li> <li>○ light pollution</li> </ul>	<p><b>Tony Hutson,</b> <b>Ruth Petermann,</b> Jacques Pir, Markus Dietz, Fiona Mathews, Hubert Krättli, Henry Schofield, Herman Limpens, Kit Stoner, Christian Voigt, Kati</p>

<sup>2</sup> <https://www.cms.int/en/document/insect-decline-and-its-threat-migratory-insectivorous-animal-populations-2>

<ul style="list-style-type: none"> <li>○ collision (wind turbines, traffic...)</li> <li>○ mosquito control for public health</li> <li>○ nano-particles?</li> <li>○ solar-panels</li> <li>○ others</li> </ul> <p>           compilation of literature (UMK, IPBES)            per <b>habitat</b> of the species            weighting major reasons of insect biomass loss <b>per habitat</b>            special need of research         </p>	<p>           Suominen,            LibušeVlasáková,            Daniela Hamidović         </p>
<p> <b>4. Major threats resulting from insect biomass loss to bats</b>            identifying pathways how does change in insect availability affects bats?         </p> <ul style="list-style-type: none"> <li>○ direct effects</li> <li>○ indirect effects / bioaccumulation of pesticides and other contaminants</li> </ul> <p> <b>Impact of insect biomass loss on bat populations/habitats</b>            correlation between insect biomass loss trends and bat monitoring data            change/availability in insect availability over the year            designation of most vulnerable species to biomass loss (opportunists vs specialists and/or major concerned habitats with high insect biomass loss)            identify special need of (long-term) research         </p>	<p> <b>Jacques Pir,</b>            Fiona Mathews,            OrlyRazgour,            Herman Limpens,            Ruth Petermann,            Daniela Hamidović,            Toni Hutson, Henry Schofield,            SasanFereidouni,            Christian Voigt,            Mounir Abi-Said,            Kati Suominen,            Marjolein van Adrichem         </p>
<p> <b>5. Compilation of good practice examples/projects increasing insect biomass</b>            prioritize actions identified:         </p> <ul style="list-style-type: none"> <li>○ by arthropod genera</li> <li>○ by habitat/ecosystem differentiation between landscapes/ecoregions</li> <li>○ by highly endangered or vulnerable species (umbrella species)</li> </ul>	<p> <b>Herman Limpens,</b>  <b>Markus Dietz,</b>            Ruth Petermann,            Daniela Hamidović,            Toni Mitchell-Jones         </p>