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## Copernicus Sectoral Information System for the Biodiversity Sector

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Biodiversity is increasingly under pressure from climate change, which affects the habitat suitability for species as well as the efficiency of ecosystem services. Management of these issues, for instance through ecosystem restoration or species dispersal measures, is often hindered by a lack of appropriate information about (future) climate conditions. To address this, an operational Sectoral Information System (SIS) for the Biodiversity sector (SIS Biodiversity) is designed within the Copernicus programme Climate Change Service (C3S). This new SIS provides tailored bio-climatic indicators and applications, and delivers novel evidence regarding impacts of past, present and future climate. As such, it provides support to decision making challenges that are currently facing unmet climate data needs.

The new climate service for SIS Biodiversity will be demonstrated, including the outline, workflow and outcomes of the use cases. The service is built upon the Copernicus Data Store platform (CDS; ), and takes into account (1) the barriers in ongoing bio-climate assessments and (2) the user requirements of diverse stakeholders (e.g. researcher institutes, local NGO's, the International Union for Conservation of Nature and Natural Resources (IUCN),...). These have been collected during workshops and bilateral meetings in 2019. A common barrier is the lack of reliable and high-resolution information about states and dynamics of the soil, sea, ice and air for the past and the future climate. Therefore, the service provides relevant bio-climatic indicators on the basis of a wealth of available variables from the latest ERA5 reanalysis datasets and the CMIP5 global climate projections available in CDS. In order to provide information at high resolution and minimize inconsistencies between observed and modelled variables, different downscaling and bias-correction techniques are applied. A common requirement is a universal and flexible interface to the bio-climatic indicators in an easy-to-use and coherent platform that is applicable for different fauna and flora species of interest. Therefore, different applications have been developed within CDS for generating bio-climate suitability envelopes from the high-resolution indicators and to evaluate climate suitability and impacts for the species under present and future climate. Finally, the service is currently tested and refined on the basis of specific use cases. Special attention is given to their transferability to other global and topical studies, hence maximizing external user uptake throughout existing research and policy networks.