

SESSION 7A – CLIMATE

PRECIPITATION DEFICIT OR INCREASED WARMING? WHICH ONE IS DRIVING THE IMPACT OF CLIMATE CHANGE ON MEDITERRANEAN BIRD POPULATIONS?

Lluís Brotons, Sergi Herrando, Nicolas Titeux, Marc Anton, Andreu Ubach, Dani Villero, Enrique García-Barros, Miguel L. Munguira, Carlos Godinho, Constantí Stefanescu

LB: CTFC-CREAF-CSIC, Spain; SH, MA: Catalan Ornithological Institute, Spain (ornitologia@ornitologia.org); NT: iDiv German Centre for Integrative Biodiversity Research, Germany; AU: Museum of Natural Sciences of Granollers, Spain; DV: CTFC, Spain, EG-B and MM: Universidad Autónoma de Madrid, Spain; CG: Instituto de Ciências Agrárias e Ambientais Mediterrânicas, LabOr Laboratório de Ornitologia, Universidade de Évora, Portugal; CS: Museum of Natural Sciences of Granollers, Spain

Climate change is often equated to climate warming because it's more prominent global effect is the increase of temperature. In Europe as a whole, as well as in their temperate and boreal regions, there are already strong evidences that temperature rise is shifting bird populations and communities. However, this general pattern has not been clearly found in the Mediterranean region, where the majority of ecosystems are more shaped by water availability than by temperature constraints, and where climate change is also associated with decreased rainfall. In this study we compared the part played by temperature and precipitation preferences in driving bird population trends in Catalonia (north-west Mediterranean basin). Trends were estimated with long-term monitoring data and the temperature and precipitation preferences were calculated using atlas data.

Bird population trends were linked to precipitation but not to temperature. The most serious population decreases was found in bird species inhabiting humid habitats. We also carried out the same type of analyses for butterflies and found the same importance of the requirements of precipitation and the lack of relation to temperature. However, for this group of invertebrates, the species decreasing the most were associated to arid environments. Our results indicate that water constraint is a more important driver of biodiversity change than climate warming in the Mediterranean region, although it may have highly contrasting impacts on different taxonomical groups.