

WORKSHOP 4

Vetted occurrence data for red-list assessments – a novel approach to review raw specimen records for ranking of species rarity and distribution

Workshop chairs: Frank Bungartz¹ & Jessica Allen, NatureServe

¹ASU Lichen Herbarium & Consortium of Lichen Herbaria

maximum number of participants: 20

Workshop Description:

During this workshop participants will explore how to critically review occurrence records of lichenized fungi, using tools provided in the *Consortium of Lichen Herbaria* to produce lists of vetted lichen occurrence records from Natural History Collections. Participants will then use data to assess global extinction risk of species and compare *IUCN red-listing criteria* with *NatureServe GRanks*.

Background

Red Listing of species, objectively assessing their threat status and extinction risk, fundamentally relies on sufficiently detailed knowledge of distribution and abundance. For lichenized fungi this remains challenging, because our knowledge remains fragmentary. Citizen science platforms like *iNaturalist* have become popular, offering a wealth of observational data, especially for neglected groups of organisms such as lichens. The *Global Biodiversity Information Facilities* (GBIF) recently decided to serve not only traditional records of specimens from Natural History Collections, but added observational records also from *iNaturalist*. Both data sets – specimen records and observations – must be considered raw and unfiltered. Without rigid quality control species identifications are unreliable and observation records are especially problematic. Even research-grade records in *iNaturalist* represent only the majority opinion based on photographic records. Many important characteristics (anatomy, secondary chemistry, molecular characteristics) cannot be verified. Still, even identifications based on specimens deposited in Natural History Collections are not necessarily more reliable. They are often outdated, the material not recently reviewed. Rigid quality control is therefore necessary to select only occurrence records that can be trusted, when assembling data sets for conservation status assessments. Compared to the global *IUCN* red-list criteria, the GRank system used in the United States and Canada by *NatureServe* relies more strongly on specific location data for threat status assessments. Both systems ultimately rely on accurate distribution data, not unverified raw occurrence records. *Symbiota*-based biodiversity data platforms such as the *Consortium of Lichen Herbaria* offer tools to create species lists based on verified vouchers as an efficient way to review raw occurrence data. These tools remain rarely used. In the workshop we will discuss and explore how a voucher-based system may help to assess and evaluate occurrence records for conservation status assessments of lichenized and allied fungi.