



## Annual Report – Living Norway 2021

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### Summary of activity - 2021

Living Norway was established in winter 2019 as a means to promote FAIR management of data from ecological research, monitoring and student thesis work in Norway. The infrastructure and standards build on the established GBIF infrastructure as far as possible to ensure interoperability and synergistic efforts. One of the rationales for establishing the Living Norway Ecological Network was to expand the current GBIF activities and capacity to increase the mobilization of data needed for ecological research across all levels of biological organization. To this end, Living Norway focuses beyond infrastructure development, including taking part in international open standards development (i.e. – expanding the current scope of the Darwin Core standard), education and training of students and researchers through workshops and training material and network activities.

In 2021, much of the Living Norway activities were mainly funded based on internal (in-kind) funding from the partner institutions. In particular, NINA allocated more than a full-time equivalent in 2021 to facilitate successful implementation of the project plans. In addition, we have received external funding from the Research Council of Norway. First, we received funding from events program for the Living Norway Colloquium 2022. In addition, we got a three-year grant from the RCN network program. This grant will cover some of our activities in the years 2021 – 2023.

In fall 2020, the Living Norway interim board was established. The interim board had two meetings in 2021. Towards the end of 2021, the Environment Agency of Norway joined the interim board as an observer. In addition, we had three meetings in the network group to coordinate the work and inform across partner institutions.

During 2021, Living Norway was presented to a range of research institutions, stakeholders and at conferences. In particular, Living Norway has been presented on several occasions internally at NINA (for specific research groups, and at lunch seminar for all departments at NINA), at NTNU (at the Centre for Biodiversity Dynamics (CBD)), at UiB (for the Ecological and Environmental Change Research Group), for EMERALD (UiO), for the Norwegian Environment Agency, for the Living Norway Colloquium 2021, and at many other informal settings. In addition, we maintain our website ([www.livingnorway.no](http://www.livingnorway.no)), and our twitter [channel](#). Towards the end of 2021, we started work to update the content on the web page to better reflect our activities. A new version of the webpage will be launched early 2022 and will be well aligned to the data portal that will be launched later in the year.

In October 2021, we organized and hosted the Living Norway Colloquium 2021. The title of this year's conference was: *The ethics and technical know-how of open science in ecology and evolution*. The conference was arranged as a hybrid conference, with in-house conferencing at the NINA-huset in Trondheim and virtual online conferencing. In this year's conference, we had participants from 11 countries, and in total 77 participants registered for the conference. On day 1, we arranged a series of lectures on open science and FAIR data management in applied ecology. On day 2, we hosted a workshop where we briefly introduced our LivingNorwayR package for program R. The Research Council of Norway supported the colloquium through the "Support for Events" program. In addition to the colloquium, we also hosted a two-day workshop on publishing ecological data using R (and LivingNorwayR) in December. In total, 28 people signed up to participate in the workshop. The participants represented many network partners (e.g. NINA, NTNU, UiB, UiO, NMBU) and institutions outside the network (from Norway and international).

Living Norway members also participated in several initiatives aiming at improved documentation and standardization of ecological data in 2021. We are involved in the Humboldt Core Working Group, a working group under [TDWG](#) (Biodiversity Information Standards). This group is working to integrate the Humboldt Core standard as an extension to the Darwin Core standard, allowing better ecological survey and inventory data documentation. In addition, the networked has offered to contribute expertise and use-cases to two additional working groups administered by the GBIF secretariate. The two groups will focus on sharing of tracking (e.g. biollogger, GPS) data and camera trap data, respectively. The groups are not yet launched, but so far, we have got positive signals that we can participate in at least the camera trap data group. Best practice guidelines for how to share such data will be important for further re-use of available camera trap data.

With internal financial support from NINA and collaboration with other partners (particularly the Norwegian GBIF node), we have worked further on various aspects of our e-infrastructure in 2021. As an initial step in 2020, we conducted a thorough and systematic evaluation of the infrastructure requirements, focusing on the Living Norway data portal and the data flow model. This report was finished in early fall 2020 and concluded that the best approach for Living Norway was to build the portal on top of the GBIF API, meaning that the data flow model of GBIF is utilized. In 2021, Living Norway participated in GBIFs hosted portal program, and the development team is developing our data portal at NINA in collaboration with GBIF. We hope the portal can be launched early 2022. In addition, our LivingNorwayR-package (for program R) has had its first beta releases in 2021, and the 1.0 version is expected to be released in the first quarter of 2022. In 2021, the tools were augmented with better functionality for creating meta data. In addition, a stand-alone application based on R-Shiny technology is being developed for the visualization of Darwin-Core formatted data sets. We have high ambitions for these tools and envisage that they will greatly enhance the publication of ecological data through Living Norway and GBIF.

In 2021 there was considerable attention related to our application submitted to the Research Council of Norway in fall 2020 for the FORINFRA program. All consortium partners were included in the application. An application for continued support to the Norwegian GBIF node was submitted in a separate call for the INFRA program fall 2020. Late 2021, it was announced that the GBIF Norway application was successful, ensuring that Norway will also have an operational GBIF node in the future. On behalf of the network, I take the opportunity to congratulate GBIF Norway for this important achievement. Unfortunately, the Living Norway Ecological Data Network did not get support from the FORINFRA program as our application was rejected. This means that our activities in 2022 and beyond have to be planned without this potential funding source.