



Annual Report – Living Norway 2020

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Summary of activity - 2020

Living Norway was established 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 builds 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 has a focus that goes 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. While clearly a mature and technically state-of-the art infrastructure is needed, also human capacity, know-how and a culture for data sharing is needed to succeed.

In 2020, Living Norway activities has been mainly funded based on internal (in-kind) funding from the partner institutions. In particular, NINA allocated more than a full time equivalent in 2020, to facilitate successful implementation of the project plans. Thus, 2020 is the first year with substantial activity in the network.

In fall 2020, the Living Norway interim board was established. This was an important event for Living Norway, as it establish and document the strong institutional support for our work and agenda. The interim board had one meeting in 2020, and the by-laws are currently being negotiated and finalized.

The size of the network increased during 2020, as also the Norwegian Institute of Bioeconomy Research (NIBIO) joined the network. The network currently consists of eight institutions; NINA, NTNU, NBIC, NHM UiO (which is also host for the Norwegian GBIF node), NMBU, UiB, NIVA and NIBIO. The network covers important institutions both in terms of data production, data management and use of data for ecological research. We envisage that the network will continue to grow in the years to come, and will actively invite other institutions to join the network.

During 2020, Living Norway was presented on a range of research institutions, stakeholders and at conferences. In particular, Living Norway has been presented at several occasions internally at NINA (for specific research groups, and at lunch seminar for all departments at NINA), at NTNU (at the Department for Mathematical Sciences), for the Norwegian Environment Agency (at multiple occasions), for the Ministry of Climate and Environment, at the Living Norway Colloquium 2020, and at many other informal settings. In addition, we maintain the our website (www.livingnorway.no), and our twitter [channel](#). We have also set up a blog-service based on GitHub pages ([here](#)), where we have shared blog posts with more technical flavor. This site will be merged with the other communication platforms during 2021. The activity on the webpage and twitter has been a bit patchy in 2020, but with increased capacity in the network online and social media visibility and activity should increase markedly.

An important milestone in 2020 was the submission of an application to the Research Council of Norway, for the FORINFRA program in October. All consortium partners were included in the application. If successful, this application will provide the resources needed to meet the ambitions plans of the network. According to the RCN, the results of the application evaluations will be announced in June. An application for continued support to the Norwegian GBIF node was submitted in a separate call for the INFRA program. Support to both applications would be a great starting point for increasing the impact of Norwegian ecological research.

Another milestone reached in 2020 was the organization and hosting of the Living Norway Colloquium 2020. The title of this years conference was: *Towards openness in and transparency in applied ecology*. The conference was arranged as a hybrid conference, with in-house conferencing at the NINA-huset in Trondheim, and virtual online conferencing with participants from >20 countries. In total, > 125 participants registered for the conference. In day 1, we arranged a series of lectures on open science and FAIR data management in applied ecology. On day 2, we hosted two complementary workshops (1: Teaching open science, 2: Modelling tools and techniques for open ecological data). The workshops were co-hosted with Centre for Biodiversity Dynamics (CBD) at NTNU, and BioCeed at University of Bergen. The

colloquium was supported by the Research Council of Norway, through the “Support for Events” program. A synopsis of the colloquium is found [here](#).

With internal financial support from NINA, we also initiated activities related to the “hard core” infrastructure in 2020. As an initial step, we first conducted a thorough and systematic evaluation of the infrastructure requirements, with a focus on the Living Norway data portal, and the data flow model. This report was finished 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 data flow model of GBIF is utilized. The document also discuss possibilities for enriching the data with Living Norway specific requirements (for data and metadata), and the main requirements for the data portal. Based on this document, Living Norway decided to apply for an open call from the GBIF secretariate for the hosted portal program. In December it was announced that Living Norway was among the selected candidates for the program. The hosted portal program of GBIF is an initiative where the GBIF secretariate host a data portal for an organization, and where the portal is developed in collaboration. In general, the GBIF secretariate will help develop the more technical aspects, and the institutions will develop content, text, branding etc. Living Norway has initiated the work on our side, and it is expected that the first version of the portal will be launched late winter/spring 2021. Moreover, in 2020 we also started the development of a R-package for creating, maintaining and visualizing Darwin Core formatted data and Darwin Core Archives in statistical program R. By the end of 2020, the core functionality of the package is mainly in place, and the first version of the package will be published early 2021. We have high ambitions for this tool, and envisage that it will greatly enhance the publication of data through Living Norway and GBIF. Finally, we have initiated the contact with Uninett Sigma2 about data archiving services, and will continue this work in 2021.

Living Norway members also participated in several initiatives aiming at improved documentation and standardization of ecological data in 2020. Of immediate relevance for Living Norway, we were involved with a project initiated by the Norwegian Environment Agency, to produce guidelines for managing and publishing eDNA-data. The summary report from the Environment Agency can be found [here](#). This report will serve as a template for later. In addition, 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 a better documentation of ecological survey and inventory data.