Research can save Norwegian nature

Thousands of Norwegian natural areas are being destroyed. Loss of biodiversity threatens both nature and human life. The ECoMAP and Ecogaps research projects will improve the way we manage and plan the use of land and water in Norway.

In just five years, 44,000 interventions have been made in Norwegian nature. Norwegian municipalities have plans to develop areas that are as large as Jotunheimen and Rondane National Park combined. That's about 2 million acres. (Photo: Shutterstock)

The nature and diversity of species are amazing and provide us with food, medicine, flood mitigation, carbon storage, fresh air and clean water. However, any change or intervention in nature can affect the habitats of plants and animals. Land use changes pose the greatest threat to nine out of ten species listed as threatened on the Red List.

"Preserving the rich animal and plant life is a challenge, especially when it comes to species that are not always easy to see and recognize, or that move throughout the year. Terns have short nesting seasons on isolated reefs, wild reindeer migrate over the mountains, white-tailed eagles fly over large areas to find food and take care of their young, and there are few experts out there who can identify mosses and insects," explains Vigdis Vandvik, professor at the University of Bergen.

Norway's nature under construction pressure

An important reason why we are unable to stop the destruction of nature is that decision-makers locally and regionally lack the knowledge or information they need to make good choices about the use of land. In just five years, 44,000 interventions have been made in Norwegian nature.

"Norwegian municipalities have plans to develop areas that are as large as Jotunheimen and Rondane National Park combined. That's about 2 million acres. If we do not stop this development, we will end up using our land in a way that is not good for nature. It is catastrophic for nature's ability to produce services we depend on, such as carbon sequestration from forests and marshes, flood mitigation from wetlands and food production from pollination," explains Marthe Indset, researcher at OsloMet.

Preserving the rich animal and plant life is a challenge, especially when it comes to species that move throughout the year, such as the wild reindeer that wander over the mountains. Any change or intervention in nature can affect the habitats of plants and animals. (Photo: Nordforsk)

Vigdis Vandvik and Marthe Indset are each working on their own research project under the theme "areas under pressure". The ECoMAP and Ecogaps projects will help decision-makers at local and regional level with the necessary knowledge and tools they need to make smart choices that safeguard nature for us and future generations. The projects have received a total of NOK 31.9 million in funding from the Research Council.

ECoMAP is working to develop advanced models that can help us understand the wide distribution of biodiversity, habitats and the resilience of our ecosystems, while Ecogaps is testing new methods for accounting for nature. Both projects contribute to closer collaboration between science, nature management, and political decision-making processes. They develop digital tools and guides that can be included in municipal and regional land-use planning.

ECoMAP summarises information about the hidden nature

The Norwegian Biodiversity Information Centre estimates that there are over 70,000 species in Norway. We know very little about the vast majority of these species — we don't really know where they are found, much less what

roles they play in ecosystems. The core of the ECoMAP project is to develop a series of detailed, scaled-down maps that can provide a better overview of the nature we have, even in areas that have not been mapped in detail, and thus contribute to better management and protection of biodiversity in Norway. By compiling maps in different ways, we can get an overview of which areas are particularly important for rare or red-listed species and habitat types, and which areas are vulnerable to invasion by alien species.

"The main goal is to make scientific knowledge easier to use in community planning and nature management, by providing precise information about which areas are important for different species, habitat types, and ecosystem resilience in a way that is easily accessible and understandable," says Vigdis Vandvik.

Maps as a contribution to better management of Norwegian nature

In order for the maps to have the greatest possible effect, they must be accessible and user-friendly. This means integration into public databases and map portals, as well as the development of interactive tools that allow most people to explore and use the data for specific purposes.

Cooperation with the Norwegian Environment Agency and other key institutions ensures that the maps and associated models are integrated into the national management system for natural resources.

"The maps and models that are developed will contribute both to preserving biodiversity and strengthening society's ability to adapt to climate change and ensure sustainable development for the future," explains Vigdis Vandvik.

We are dependent on carbon sequestration from forests and marshes, flood mitigation from wetlands and food production from pollination. Therefore, development must stop so that we do not use our land in a way that is not good for nature. (Photo: Shutterstock)

Nature accounts can be the key to sustainable land use

The Ecogaps project emphasizes two tasks: to test new and common methodologies for accounting for nature and to find out how such accounts can be included in political decision-making processes.

Nature accounts are an innovative method for measuring changes in land use and the "state of health" in nature over time. It is about mapping the distribution of different habitat types, the state of nature and its functions, so that we can manage human activity and land use in a more knowledge-based way.

"By keeping accounts of nature, just as we keep financial accounts, decision-makers in municipalities and county municipalities can get an overview of nature on land and water where they will make decisions about future use. The municipalities do not have such overviews today, but it is knowledge that is crucial to ensure that the ecosystems can continue to deliver important services to society, such as clean water, pollination, and flood control," says Marthe Indset.

The authorities' bridge builder

Today, the municipalities' mapping of nature differs. Nature accounts must therefore be included in a uniform framework, so that nature mapped in one municipality can be compared with surveys in other municipalities. At the same time, we gain knowledge about the overall load. Some of the most important results from the EcoGaps project have been to develop common mapping methods in the municipalities, because information about land and nature is scattered and difficult to get an overview of. EcoGaps also dives into municipal land management and studies how nature accounts can be used and strengthen the planning process itself, which is a comprehensive process with many actors and sources of knowledge.

"Without a clear picture of the state of nature and how we use it, the municipalities cannot make informed and sustainable decisions. For example, nature accounts show which natural areas politicians decide to preserve or

build down over time. By publishing updated nature accounts on the municipality's website, residents can more easily see how much nature is being built down as a result of political decisions. At present, such information does not exist. Then it will also be difficult for voters to hold politicians accountable," says Marthe Indset.

EcoGaps has already gained significant attention and commitment from municipalities across the country, underscoring the need and desire for better tools for nature management. By developing methods for nature accounting that are easily understandable and accessible, the project can give us a more sustainable future for Norway's land use.

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