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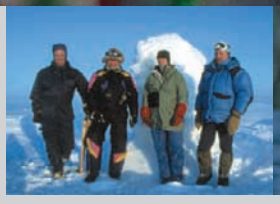
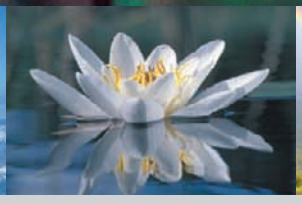
Cooperation and expertise for a sustainable future

NINA
Norwegian Institute for Nature Research


TEAMWORK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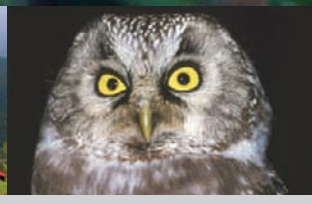
QUALITY

Norwegian Institute for Nature Research - **NINA**

photo: T. Aarvak

NINA's mission

The mission of the Norwegian Institute for Nature Research (NINA) is to be a leading national and international research institution in the production of applied scientific knowledge that can serve as a basis for the sound management and utilization of natural resources.

NINA's vision:

Cooperation and expertise for a sustainable future

Cooperation and expertise
We work together with our clients, and use our expertise to enhance their performance. We cooperate with each other within NINA and with researchers from other research institutions.

A sustainable future
We use our expertise to provide long-term environmental solutions that will benefit both our clients and society as a whole.

NINA's research organization

The Norwegian Institute for Nature Research (NINA) is Norway's leading institution for applied ecological research. NINA is responsible for long-term strategic research and commissioned applied research to facilitate the implementation of international conventions, decision-support systems and management tools, as well as to enhance public awareness and promote conflict resolution.

The institute have well-equipped laboratories and research facilities at seven locations in Norway. NINA offers broad-based ecological expertise covering the genetic, population, species, ecosystem and landscape level, in terrestrial, freshwater, and coastal marine environments.

NINA's services

NINA's services include:

- Research
- Dissemination of research results
- Environmental impact assessments
- Environmental monitoring and status reports
- Consultancies and evaluations
- Courses and training

Photos: J. Backer, O. T. Sandlund, T. Anker-Nilssen, K. B. Strann, B. Finstad, B. K. Dervo.

NINA's research areas

NINA offers broad-based ecological expertise covering the genetic, population, species, ecosystem and landscape level, in terrestrial, freshwater, and coastal marine environments. In addition, NINA addresses a wide variety of interdisciplinary issues involving both ecologists and social scientists, and plays an important role in European and other international research activities. NINA is experienced in dealing with natural and human aspects of resource and biodiversity management in developing countries and Eastern Europe, and has actively contributed to capacity building and technology transfer by means of research cooperation and consultancy activities. NINA's activities encompass resource assessment and monitoring, development of methodologies, environmental impact assessments, community-based resource management, and analysis of natural, anthropogenic and socio-economic aspects of biodiversity and resource management. NINA's staff provides comprehensive and up-to-date scientific expertise, and guarantees top-quality services in commissioned research and consultancy tasks.

NINA's expertise is mainly focused on basic and applied research concerning the sustainable use, management and conservation of natural resources and biological diversity in areas such as:

- Land use and nature management, including landscape analysis in the coastal zone
- Harvesting and sustainable use of fish and game stocks
- Community development and local participation in natural resource management
- Commercial development related to biological resources
- Environmental impacts of agriculture and aquaculture
- Vegetation and wildlife surveys
- Monitoring and time-series analyses regarding natural resources
- Red-list evaluations and conservation planning
- Analysis and resolution of conflicts related to utilization of natural resources and protection of threatened species
- Environmental databases – development, operation, use, and public information
- Pollution impact analysis and monitoring
- Environmental impact assessments connected to human encroachments, infrastructure development and land-use changes

NINA has a long **tradition** of working in close cooperation with its clients and providing key information to decision-makers.

NINA's **goal** is to promote excellence among its clients, and generate scientific products of high quality and relevance. NINA attaches great importance to scientific integrity, and emphasizes objectivity, independence and quality in research.

NINA's efforts are focused on environmental research emphasizing the interaction between human society, natural resources and biodiversity. The institute's research in the natural and social sciences, and its collaborative networks in Norway and abroad, enable it to provide management agencies, industry and civil society with top-notch information and advisory services on all aspects of natural resource management and the sustainable use of renewable resources.

photo: T. Bekkby

photo: J. Thomassen

Development Collaboration

NINA's activities in developing countries include collaboration on research and institutional development with research institutes, universities, and management institutions, as well as short-term consultancies regarding natural resource management, biodiversity management, environmental issues, environmental impact assessments (EIAs), etc. During the past decade, we have been cooperating on long-term research and institutional development with institutions in Africa, Asia and Central America.

NINA attaches importance to cooperating on an equal footing with its partners to build competence and promote mutual benefits for all parties. Integrated natural resource management requires an understanding of the social as well as the natural sciences. Alleviation of poverty in rural populations must be focused on the sustainable use of available natural resources, both in cultivated lands, in wildlands, and in rivers, lakes and coastal waters.

Presently, approximately 25 NINA scientists have experience from cooperative research projects and consultancies in developing countries. Their competence covers social sciences, marine and freshwater fish ecology, wildlife ecology, entomology, vegetation science, and landscape ecology. NINA's collaborative networks in Norway and abroad enable us to enlist the additional services of a large number of experienced professionals covering all aspects of natural resource management.

photo: O. T. Sandlund

Biodiversity

Nature offers a great diversity of ecosystems, species and genetic resources, all of which form a basis for human utilization and experience. The sustainable utilization of nature's products and services is contingent upon functioning ecosystems. Resource use options may often be restricted by conflicting economic interests, and a balance needs to be found between present levels of commercial use and conservation of resources for future generations.

NINA conducts research for the purpose of conservation and sustainable use of species, ecosystems and landscapes. Our long-standing research traditions, broad-based knowledge of nature, and ability to apply the most recent research methods enables us to undertake projects to assist all stakeholders in the management of the natural environment. In particular, NINA has been active in research and consultancy work to facilitate the implementation of the Convention on Biological Diversity and other biodiversity-related conventions.

photo: T. F. Næsje

Fish Ecology

NINA's applied research on inland fish and anadromous salmonids in both freshwater and the ocean builds on a 150-year tradition. Our expertise on Atlantic salmon and sea trout is internationally acknowledged.

Important research on inland fish relates to acidification and liming, re-establishment of lost fish stocks, the impacts of infrastructure development, as well as stock management, fisheries, human encroachments and effects of hydropower plants. More recent research on salmonids has focused on questions relating to fish farming, the conservation of wild salmon stocks, and the life of salmon in the ocean. NINA's expertise in fish telemetry is of high international standard. Our long-term monitoring series for salmon and freshwater fish stocks forms an important basis for understanding the impacts of human activities. NINA's research station for salmonids at Ims in Rogaland is ranked among the best of its kind in Europe.

photo: A. Landa

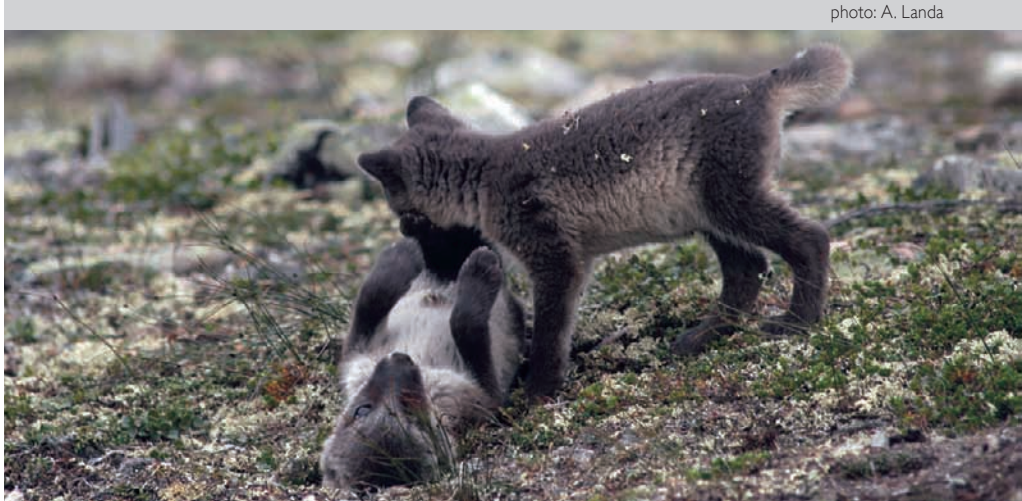

photo: T. Bekkby

Marine and Coastal Ecology

Coastal zone management involves several environments and ecosystems. The greatest challenge is to safeguard economic and social development in the coastal zone while at the same time fostering its distinctive natural and cultural values. NINA combines competence on terrestrial, marine and freshwater systems, thus helping to promote a holistic understanding of species and ecosystems in the coastal zone, including various human activities within these zones.

NINA has carried out comprehensive studies on the ecology of single species as well as of species interactions in marine, limnic and terrestrial systems. We have worked extensively with ecosystem studies, analysing the value and vulnerability of habitats and ecosystems on a larger scale. We have established sample designs for data collection in the field that include the use of radio and satellite tracking, video monitoring and acoustic telemetry. NINA has successfully employed geographical information systems (GIS), land and seascape ecology, habitat mapping and terrain modelling when studying species, their environments, and the impact of human activities.

photo: O. T. Sandlund

photo: T. Bekkby

Landscape Ecology

The land and seascape represents the arena in which the lives of plants and animals unfold, the framework for the ecosystems, and the foundation for ecological processes. The landscape also influences the ways in which natural resources are distributed, as well as how and to what degree these resources can be utilized by humans.

There is a great professional challenge inherent in the development and integration of a spatial perspective into our understanding of the structure and function of ecosystems. NINA's expertise and technology on land and seascape ecology, landscape analysis, terrain modelling and geographical information systems (GIS) helps to promote more cost-effective management of land areas and aquatic resources. It provides a basis for rational land use and resource planning while giving due account to the requisite environmental considerations.

NINA's project portfolio in this field includes land use and production planning in agriculture, forestry and fisheries, mapping of values and vulnerability associated with biological diversity and harvestable resources, land-use planning and impact assessments. Other important activities involve the development of environmental indicators, environmental restoration, and area suitability analyses.

photo: P. Jordhøy

Wildlife ecology

NINA's research on game and predators includes large predators, birds of prey, threatened bird species, and all game species

NINA has a national responsibility for research and monitoring concerning game species, large carnivores and birds of prey. Our research on carnivores is mainly focused on the "large four": brown bear, wolf, wolverine and lynx, in addition to golden eagle, and arctic fox which is endangered on a Fennoscandian level. Our game research focuses on the four cervid species (moose, wild reindeer, red deer and roe deer) and several small game species. The Norwegian management authorities aim to achieve an adaptive and science based management regime for these species, which requires a solid platform of scientific knowledge. NINA's research scientists have a sound ecological competence regarding these species. Several of the predatory species are at the center of conflicts in society between different stakeholder groups. Gathering scientific data to resolve or reduce these conflicts requires a close collaboration between natural and social scientists. Among NINA's staff are scientists from both traditions, with a rapidly developing experience in multidisciplinary research. Presently, active research focuses on, e.g., community attitudes towards, and knowledge about, the big four, as well as other issues in the interface between society and nature.

NINA is also active with respect to research on small game species such as ptarmigan and geese, and red-listed species such as great snipe.

photo: K.-B. Strann

photo: A. Hofgaard

photo: P. Jordhøy

Arctic Ecology

Nature management in northern regions offers a range of challenges that require enhanced science-based understanding. Pertinent examples include the effects of pollution and over-grazing of vegetation.

NINA's researchers have wide-ranging expertise in a variety of approaches to ecological problems related to the northern regions and the Arctic.

NINA collaborates with the other institutions at the Polar Environment Centre in Tromsø. Important activities include studies related to long-range transport of hazardous chemicals, such as PCBs, use of biological diversity, including anadromous salmonids and reindeer, plants, birds, small mammals and insects.

Climate Impact Studies

The effect of climate on ecological processes is a topic with strong traditions within NINA's environmental research activities. In light of the major climatic changes predicted for the coming decades, especially in the northern regions, this has become one of NINA's new priority areas.

NINA's scientists study the effects of climate variability and change on a range of populations, species, communities and ecosystems in various environments in Norway including Svalbard. The research is based on broad national and international collaboration, including activities outside Scandinavia e.g. in the Alps and the Tropics.

Topics in focus include the effects of snow and melting ice on fish populations; interactions between snow, plants and herbivores; the importance of changed winter and summer climates for plants, animals and entire ecosystems; changes in the distribution of plant and animal species; changes in the location of the treeline; phenological development; and changes in production and growth patterns in individual species and populations.

Human-Environmental Studies

The exploitation of resources and values in natural areas is a complex field. Management institutions and the various stakeholders are often confronted with difficult decisions. In order to achieve sustainable practices and minimize conflict, it is necessary to obtain adequate knowledge about the driving forces in society and the needs and goals of different stakeholder groups. It is also imperative to have sufficient insight into preventative or compensatory measures, and the impact these have on both nature and society.

NINA's researchers have expertise within cultural and resource geography, nature management, psychology, sociology, anthropology and planning. Through interdisciplinary collaboration and the use of relevant and cutting-edge methods, we offer services designed to meet the challenges inherent in activities relating to, e.g., outdoor recreation, industrial development, nature-based industries, and conservation issues, both in Norway and abroad.

photo: J. Thomassen

photo: A. Hagen

photo: S. Einum

photo: T. F. Næsje

Freshwater Ecology

NINA's research in freshwater ecology includes natural and social science issues in connection with the use of water resources, e.g. effects of harvesting, pollution, climate change, and physical encroachment. Important specific areas of research include the liming of acidified freshwaters, ecological studies on species and ecosystems, mapping and evaluation of red-list species and other freshwater species which demand special attention. We are also involved in research concerning watershed management issues.

In coming years, NINA's activity within freshwater ecology will to a large extent be directed by the European Union's Water Framework Directive. In keeping with this, social sciences will be combined with natural sciences to generate modern, management-related research.

EU Research

NINA's participation in research projects conducted within EU's framework research programmes constitutes an important facet of our activities. Such participation leads to international recognition, and provides an opportunity for qualitative development and increased collaboration with other European research environments. On average, NINA is participating in five to ten EU-funded projects at any given time.

NINA is a partner in the ALTER-net (A long-Term Biodiversity, Ecosystem and Awareness Research Network) network of excellence funded by the EU's 6th Framework Programme from 2004.

NINA's EU-related research focuses on a number of important areas, including biodiversity, climate change and problems in connection with the sustainable management of salmonid fishes.

Environmental and Impact Assessment

NINA has achieved a unique level of expertise in relation to human intervention in the natural environment. Infrastructure development and other actions that have an impact on the natural environment are often subject to the provisions of the Planning and Building Act that require EIAs.

NINA is in possession of the special skills needed to assess the character and potential effects of any given enterprise. This includes prioritizing topics relevant to the decision-making process (i.e. "scoping") and analysing and assessing these in a professional and rational way, in close contact with clients and stakeholders.

In order to optimize the EIA process, NINA recommends that major alternative topics relevant to decision-making be identified as early as possible in the planning process. We offer our own contingency assessment through GIS-based landscape analysis, and targeted scoping and discussion of topics to be incorporated in the EIA. This makes it possible to concentrate efforts around the core of the impact assessment work: determining relevance to decision-making.

NINA's experience includes EIA efforts related to oil and gas; hydropower; harbour, road and railway construction; industrial and business establishment; and bulk extraction.

photo: T. Hesthagen

NINAs research partners

NINA has formalized cooperation agreements (MoU) with a number of acknowledged research and management institutions world wide, including leading universities and research institutes.

In Norway, our main collaborative networks are NODE and ENVIRA.

NODE (Norwegian Consortium for Development and Environment), consists of NINA, Chr. Michelsen's Institute (CMI), and NORAGRIC. These institutions utilize their broad-based competence in natural and social sciences to contribute to a variety of international projects, focusing in particular on natural resources management and poverty alleviation.

ENVIRA (Environmental Research Alliance) is formed by the six environmental research institutes in Norway and forms the basis for rewarding scientific collaboration:

- The Norwegian Institute for Nature Research (NINA)
- The Norwegian Institute for Air Research (NILU)
- The Norwegian Institute for Urban and Regional Research (NIBR)
- The Norwegian Institute for Water Research (NIVA)
- The Norwegian Centre for Soil and Environmental Research (Jordforsk)
- The Norwegian Institute for Cultural Heritage Research (NIKU)

In addition, NINA has close contact and collaboration with a range of Norwegian research and education centres, e.g.:

- Universities (Norwegian University of Science and Technology, University of Bergen, University of Tromsø, University of Oslo, Agricultural University of Norway, Norwegian School of Veterinary Science)
- Several university colleges
- The Institute of Marine Research
- The Norwegian Institute for Fisheries and Aquaculture
- The Norwegian Forestry Research Institute
- The Norwegian Crop Research Institute
- The institutions of the Polar Environmental Centre
- Foundation for Industrial and Technical Research

NINA also participates in **ALTER-net**, a long-term **European Network of Excellence** in biodiversity research, funded by the European Union. ALTER-net encompasses the leading biodiversity research institutes in Europe and counts 25 institutes in 17 countries.

Clients and partners

NINA's principal clients at the national level are the Research Council of Norway, and the authorities involved in nature management activities, such as the ministries of agriculture, fisheries, foreign affairs, transport and communications, petroleum and energy, and defence. Other key national clients include the hydropower, oil, aquaculture, and tourist industries, in addition to local and regional authorities and institutions. NINA offers these clients a wide selection of services ranging from research commissions, assessments, monitoring and surveys to advisory and other services in connection with development of commercial and industrial activity associated with natural resources. NINA has also been assigned the task of managing central national databases.

At the international level, NINA's clients include the European Union (EU), and various multilateral aid agencies such as the UNDP and World Bank. National ministries, departments and institutions in collaborating countries also comprise important clients. Development cooperation activities in the form of institutional collaboration with third world institutions as well as short-term consultancies are funded by the Norwegian Agency for Development Cooperation (NORAD).

photo: N. Røv

Cooperating international institutions

NINA employees work together with a large number of international scientists from 119 institutions in 33 countries. Important international institutions cooperating with NINA are:

Convention for the Conservation of Antarctic Marine Living Resources
International Council for the Exploration of the Sea
North Atlantic Salmon Conservation Organization
United Nations Food and Agriculture Organization

AFRICA

Botswana
Department of Wildlife and National Parks
University of Botswana

Lesotho
National University of Lesotho

Malawi
Bunda College, University of Malawi
National Herbarium and Botanical Gardens

Namibia
Ministry of Fisheries and Marine Resources
World Wildlife Fund

South Africa
Marine and Coastal Management
Rand Afrikaans University
Rhodes University
South African Institute of Aquatic Biodiversity
University of Cape Town
University of Pretoria
University of Fort Hare

Tanzania
Sokoine University of Agriculture
Tanzania Wildlife Research Institute
Tanzania Forestry Research Institute
University of Dar Es Salaam

AMERICA

Canada
AquaNet
Canadian Wildlife Service
Department of Anatomy and Physiology
Department of Fisheries and Oceans
Ontario Ministry of Natural Resources
University of British Columbia
University of Laval
University of Montreal
West Vancouver Laboratories
York University

Costa Rica
National Biodiversity Institute (INBio)
The Tropical Agriculture Research and Higher Education Center

Panama
Smithsonian Tropic Research Institute

USA
Humboldt University
Oregon State University
Stanford University
University of Alaska
University of Michigan
US Fish & Wildlife Service
US Geological Survey

ASIA

Indonesia
BirdLife International
Ministry if Environment
Research Centre for Biology-LIPI

Japan
Institute of Environmental Sciences
University of Hokkaido

EUROPE

Austria
Museum of Natural History

Belgium
Institute of Nature Conservation
Université Catholique de Louvain
University of Leuven

Czech Republic
Faculty of Biological Sciences
Institute of Botany

Denmark
Danish Institute for Fisheries Research
National Environmental Research Institute

Estonia
Agricultural University
University of Tartu

Finland
Finnish Environment Institute
Finnish Forest Research Institute
Finnish Game and Fisheries Research Institute
University of Helsinki
University of Oulu

France
Centre d'Ecologie
Centre National de la Recherche Scientifique
European Topic Centre on Nature Protection and Biodiversity
Institute Nationale de la Reserche Agronomique
Université J. Fourier
Université Lyon
Université Pierre et Marie Curie
Universite de Poitiers

Germany
Carl von Ossietzky University
Centre for Environmental Research Leipzig-Halle
University of Regensburg

Greece
Aristotle University

Greenland
Greenland Institute of Natural Resources

Iceland
Conservation of Arctic Flora and Fauna

Ireland
Central Fisheries Board
Economic and Social Research Institute
Marine Institute
National University of Ireland Cork

Israel
Faculty of Life Sciences
Hebrew University of Jerusalem

Italy
COISPA Technologia and Ricerca

Latvia
Latvian Crayfish and Fish Farmers Association
Latvian Fisheries Research Institute

Lithuania
Institute of Ecology
Lithuanian State Pisciculture and Fishery Research Centre

The Netherlands
Alterra - Green World Research Centre
European Centre for Nature Conservation
European Seabirds at Sea
Netherlands Institute of Ecology
University of Groningen
University of Nijmegen
Wageningen University
Wetlands International

Portugal
Liga Para a Proteccaõ da Natureza
University of Coimbra
University of Evora

Russia
All Russian Institute for Nature Protection and Reserves
Kandalaksha State Nature Reserve
Karelian Research Center of RAS
Murman Marine Biological Institute
Northern International University
Russian Academy of Scence

Spain
Pyrenean Institute of Ecology

Sweden
Göteborg University
Lund University
National Board of Fisheries
Stockholm University
Swedish University for Agricultural Sciences
Umeå University
Uppsala University

UK
BirdLife International
Centre for Ecology and Hydrology
DARDNI
Fisheries Research Services
Freshwater Biological Association
Institute of Zoology
Joint Nature Conservancy Council
The Macaulay Institute
National Environmental Research Council
Queen's University of Belfast
University of East Anglia
University of St. Andrews
University of Glasgow
University of Aberdeen
University of Wales
University of Sheffield
Scott Polar Research Institute
The Wildfowl and Wetlands Trust

photo: O. T. Sandlund

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