

# Cooperation and expertise for a sustainable future



TEAMWORK

ENTHUSIASM

INTEGRITY

QUALITY



## Cooperation and expertise for a sustainable future

The **Norwegian Institute for Nature Research (NINA)** is Norway's leading institution for applied ecological research and a key research institute in Europe. NINA perform short and long-term research and commissioned applied research to facilitate the implementation of international conventions, decision-support systems, and management regulations. We also perform consultancies for industry and management authorities, and we work to enhance public awareness and to promote conflict resolution.

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

NINA's activities 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.

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 is a national and international centre of expertise in the field of nature research**

### NINA's areas of activities:

- 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

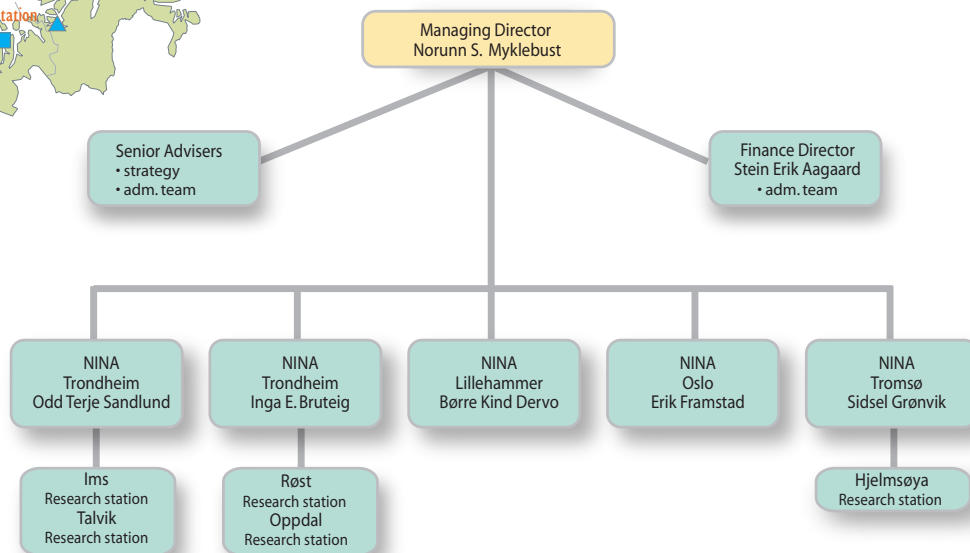
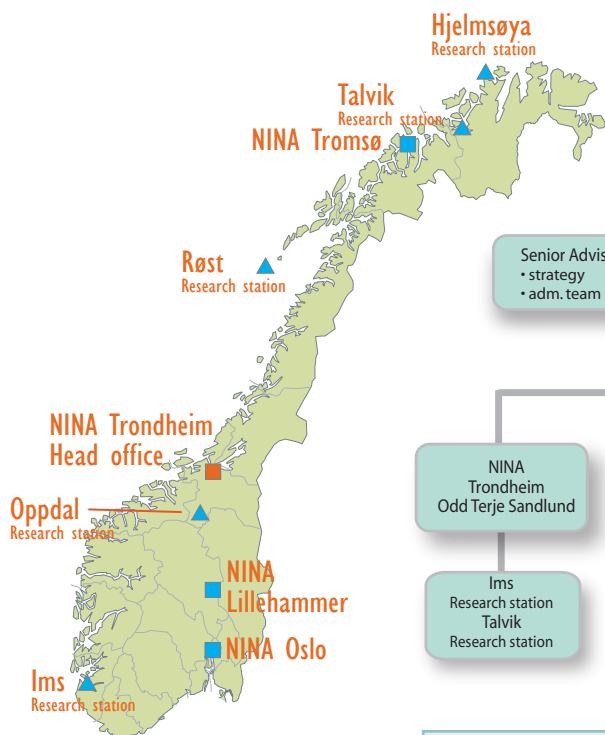
### NINA's services:

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

### NINA's key statistics for 2007:

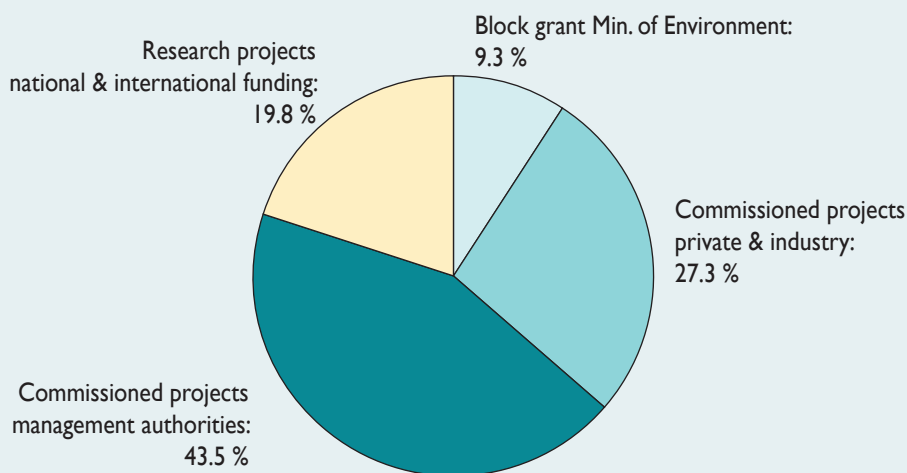
Number of employees:	161
Turnover:	22 mill. EUR
Number of publications:	139 scientific papers 115 reports in our own series 198 other written reports

# NINA's organisation



NINA was established in 1988. The main office is in Trondheim, and additional offices are established in Oslo, Lillehammer and Tromsø. NINA also owns and runs research stations for fish at Ims and Talvik, for seabirds at Røst and Hjelmsøya, and a breeding farm for arctic fox at Oppdal.

## NINA's turnover 2007



Total turnover: 22 mill. EUR

[www.nina.no](http://www.nina.no)

# NINA's research areas



photo: T. Aarvak

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 capa-

city 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.





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.

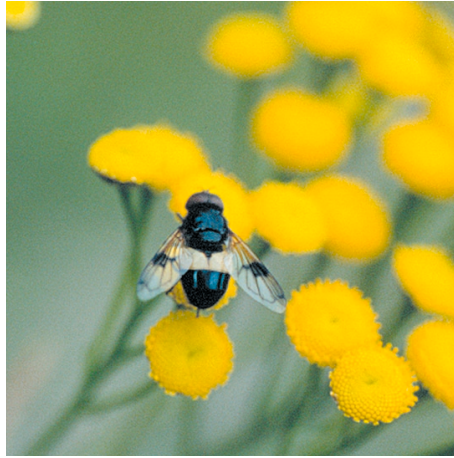


photo: O. T. Sandlund

## 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 longstanding 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 lms in Rogaland is ranked among the best of its kind in Europe.

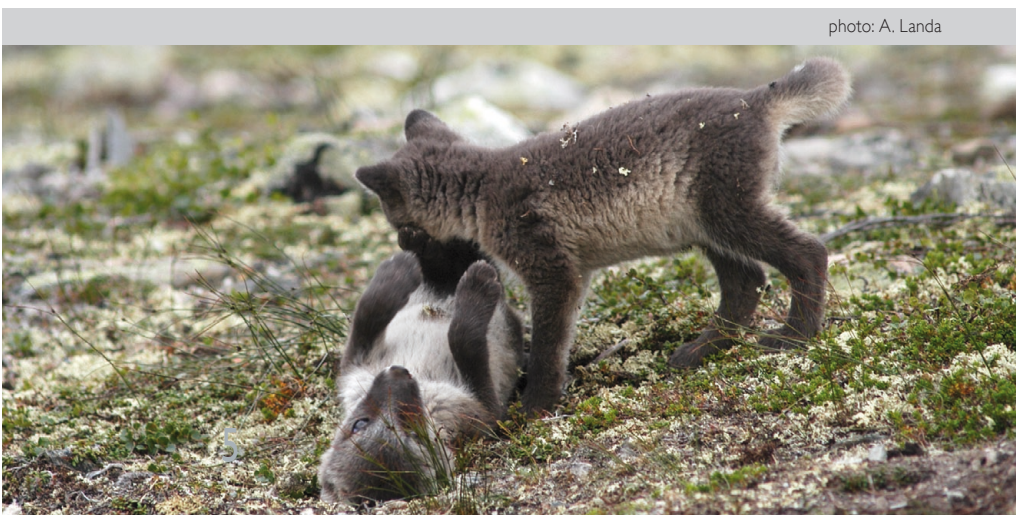


photo: A. Landa





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

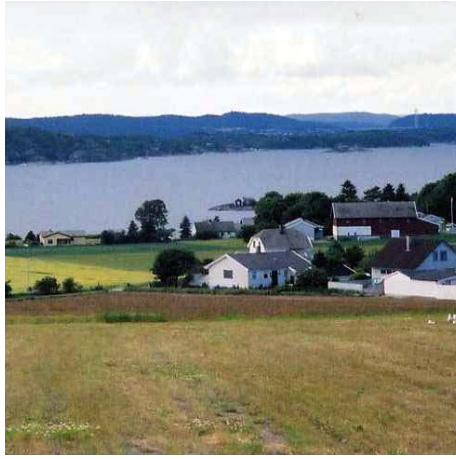


photo: T. Bekkby

## 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 Fenno-scandian 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: Ø. Os

## 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 tree-line; 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

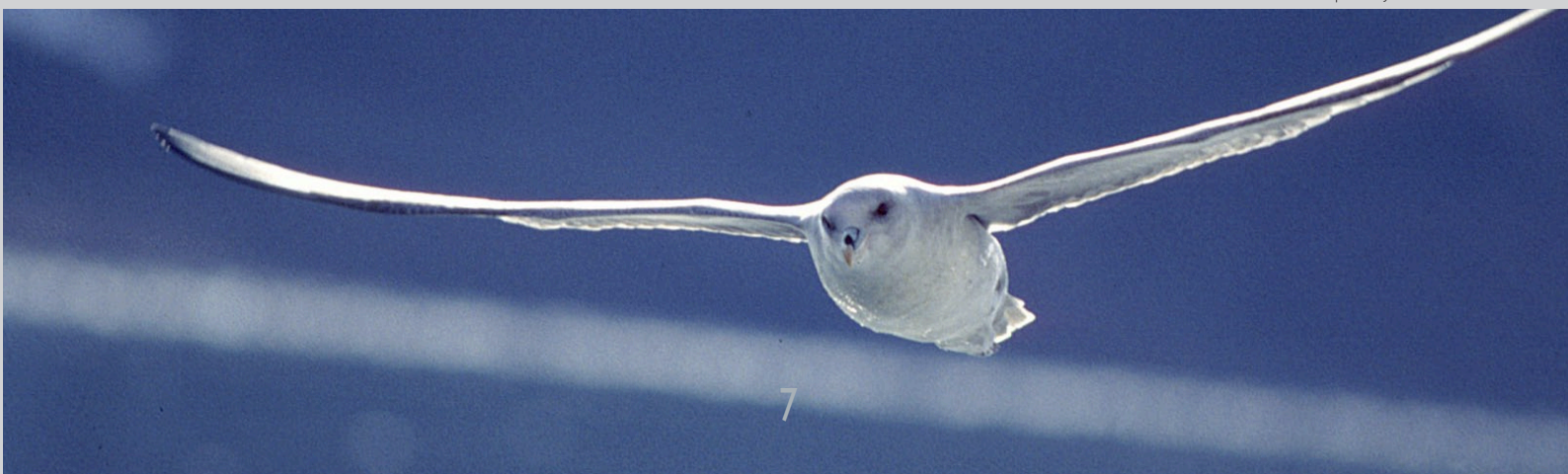






photo: A. Hagen



photo: L. Sundt-Hansen



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 network is Environmental Research Alliance (ENVIRA): **ENVIRA** is formed by the eight environmental research institutes 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 Institute for Cultural Heritage Research (NIKU)
- BIOFORSK Soil and Environment
- The Center for International Climate and Environmental Research (CICERO)
- The Institute of Transport Economics (TØI)

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, Norwegian University of Life Sciences, Norwegian School of Veterinary Science
- Several university colleges
- The Institute of Marine Research
- The NOFIMA
- The Norwegian Forest and Landscape Institute
- The National Veterinary Institute
- The Norwegian Institute for Agricultural and Environmental Research
- The Polar Environmental Centre
- The Oslo Centre for Interdisciplinary Environmental and Social Research
- The 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.

NINA also participates in the LifeWatch e-science and Technology Infrastructure for Biodiversity Research.

# Clients and partners

NINA's principal clients at the national level are the Research Council of Norway, The Ministry of Environment, and other 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. Røy





# Cooperating international institutions

NINA employees work together with a large number of international scientists from 234 institutions in 49 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

### **Ethiopia**

University of Addis Ababa

### **Lesotho**

National University of Lesotho

### **Malawi**

Bunda College, University of Malawi

### **Mali**

Institute d'Economie Rurale

### **Namibia**

Ministry of Fisheries and Marine Resources  
World Wildlife Fund

### **Senegal**

Institut Senegalais de Recherches Agricoles

### **South Africa**

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

### **Tanzania**

Frankfurt Zoological Society  
Sokoine University of Agriculture  
Tanzania Wildlife Research Institute  
Tanzania Forestry Research Institute  
University of Dar es Salaam

### **Uganda**

Makerere University

## **AMERICA**

### **Canada**

Bedford Institute of Oceanography  
Brock University  
Canadian Wildlife Service  
Carlton University  
Dalhousie University

Department of Anatomy and Physiology  
Department of Fisheries and Oceans  
Institut national de la recherche scientifique  
Lakehead University  
Memorial University of New Foundland  
Nipissing University  
Ontario Ministry of Natural Resources  
Université du Québec à Montréal  
Université Laval  
University of Alberta  
University of British Columbia  
University of Montreal  
University of New Brunswick  
University of Prince Edward Island  
University of Saskatchewan  
University of Waterloo  
West Vancouver Laboratories  
York University

### **Costa Rica**

National Biodiversity Institute  
National University of Costa Rica  
The Tropical Agriculture Research and Higher Education Center

### **Panama**

Smithsonian Tropic Research Institute  
University of Panama

### **USA**

Alaska Department of Fish and Game  
Humboldt University  
Marine Biological Laboratory  
Marine Conservation Biology Institute  
Michigan State University  
National Marine Fisheries Service  
Northeast Fisheries Science Centre  
Oregon State University  
Pennsylvania State University  
Stanford University  
Texas A & M University  
University of Alaska  
University of California, Berkeley  
University of Florida  
University of Montana  
University of Michigan  
University of Wisconsin - Madison



photo: E. B. Thorstad

University of Wisconsin - Milwaukee  
US Fish & Wildlife Service  
US Geological Survey

## **ASIA**

### **India**

Ashoka Trust for Research in Ecology and the Environment  
Asian Nature Conservation Foundation  
Indian Institute of Science

### **Indonesia**

BirdLife International  
Ministry of Environment  
Research Centre for Biology-LIPI

### **Japan**

Institute of Environmental Sciences  
University of Hokkaido

### **Nepal**

International Centre for Integrated Mountain Development

## **EUROPE**

### **Albania**

Protection and Preservation of Natural Environment in Albania

### **Austria**

Karl-Franzens Universität Graz  
Museum of Natural History

### **Belgium**

Free University of Brussels  
Institute of Nature Conservation  
Royal Belgian Institute of Natural Sciences  
Université Catholique de Louvain  
University of Leuven

### **Bosnia & Herzegovina**

University of Sarajevo

### **Croatia**

University of Zagreb

### **Czech Republic**

Charles University  
Faculty of Biological Sciences  
Institute of Botany



**Denmark**

DTU Aqua  
National Environmental Research Institute  
University of Copenhagen

**Estonia**

Agricultural University  
Centre of Forest Protection  
University of Tartu

**Faroe Islands**

Fisheries Laboratory of the Faroes

**Finland**

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

**France**

Cemagref  
Centre d'Ecologie  
Centre National de la Recherche  
Scientifique  
European Topic Centre on Nature Protection  
and Biodiversity  
Institute Nationale de la Reserche  
Agronomique  
Lab of Biometry and Evolutionary Biology  
Université Blaise Pascal  
Université Claude Bernard  
Université J. Fourier  
Université Lyon  
Université de Montpellier  
Université Pierre et Marie Curie  
Université de Poitiers  
Université de Savoie

**Germany**

Carl von Ossietzky University  
Centre for Environmental Research Leipzig-  
Halle  
University Erlangen-Nuremberg  
Universität Hohenheim  
University of Regensburg  
Zoological Museum Hamburg

**Greece**

Aristotle University  
Forest research institute

**Greenland**

Greenland Institute of Natural Resources

**Iceland**

Agricultural University of Iceland  
Conservation of Arctic Flora and Fauna  
Directorate of Fisheries  
Institute of Freshwater Fisheries  
Salmon and Trout  
Soil Conservation Service

**Ireland**

Central Fisheries Board  
Economic and Social Research Institute  
Marine Institute

National University of Ireland Cork  
University College Dublin

**Israel**

Faculty of Life Sciences  
Hebrew University of Jerusalem  
Tel Aviv University

**Italy**

COISPA Technologia and Ricerca  
EU Joint Research Center

**Latvia**

Latvian Crayfish and Fish Farmers  
Association  
Latvian Fisheries Research Institute  
Latvian State Forest Research Institute

**Lithuania**

Institute of Ecology  
Lithuanian State Pisciculture and Fishery  
Research Centre

**Macedonia**

Hydrobiological Institute  
Macedonian Ecological Society

**The Netherlands**

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

**Portugal**

Liga Para a Protecção da Natureza  
University of Aveiro  
University of Coimbra  
University of Evora

**Russia**

All Russian Institute for Nature Protection  
and Reserves  
Institute of Global Climate and Ecology  
Institute of the Industrial Ecology of the  
North  
Kandalaksha State Nature Reserve  
Karelian Research Center of RAS  
Moscow State University  
Murman Marine Biological Institute  
Northern International University  
Russian Academy of Science

**Serbia**

Wildlife Conservation Society

**Slovenia**

LUTRA  
University of Ljubljana

**Spain**

Estacion Biologica de Doñana  
Instituto de Ciencias i Tecnologia  
Ambientals  
Instituto de Investigación en Recursos  
Cinegéticos

Pyrenean Institute of Ecology  
Universidad Politécnica de Madrid  
University of Alicante

**Sweden**

Blekinge Institute of Technology  
Göteborg University  
Karlstad University  
Lund University  
National Board of Fisheries  
Stockholm University  
The Swedish Museum of Natural History  
Swedish University of Agricultural Sciences  
The Royal Swedish Academy of Science  
Umeå University  
Uppsala University  
Switzerland  
KORA carnivore research

**UK**

Aberystwyth University  
BirdLife International  
Cambridge University  
Centre for Ecology and Hydrology  
Centre for Environment  
DARDNI  
Fisheries Research Services  
Freshwater Biological Association  
Imperial College London  
Institute of Zoology  
Joint Nature Conservancy Council  
The Macaulay Institute  
National Environmental Research Council  
Queen's University of Belfast  
Royal Botanical Gardens  
Royal Society for Protection of Birds  
Scape Trust  
Scott Polar Research Institute  
University of Aberdeen  
University of Bath  
University of Bristol  
University of East Anglia  
University of Edinburgh  
University of Exeter  
University of Glasgow  
University of Leicester  
University of Sheffield  
University of St. Andrews  
University of Stirling  
University of Wales  
The Wildfowl and Wetlands Trust

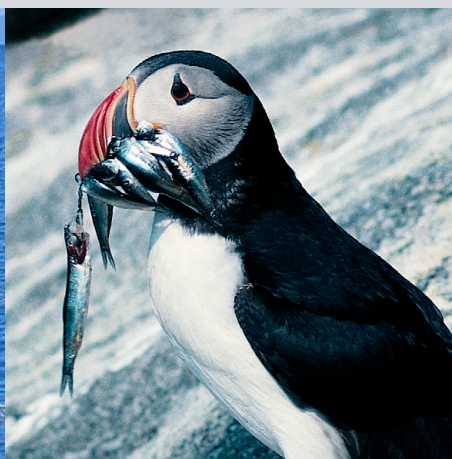
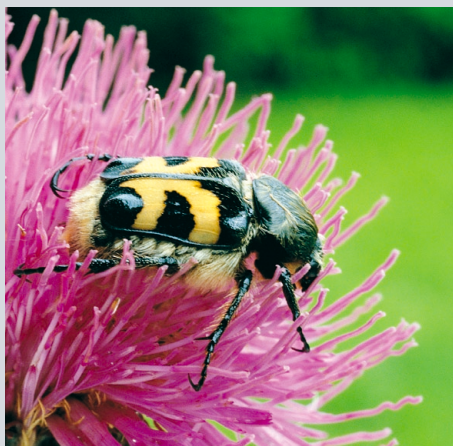
**SOUTH PACIFIC****Australia**

Griffith University  
Monash University  
Queensland Museum

**New Zealand**

National Museum of Water and  
Atmospheric Research  
University of Auckland





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