



Norwegian Institute for Nature Research (NINA) 2002





Environmental package prevents landslide

Karl Otto Jacobsen, NINA, Elin Rose Myrvoll, NIKU

The Norwegian Public Roads Administration (PRA) was planning landslide prevention measures along the E6 in Kåfjord, Troms, Northern Norway.

NINA•NIKU was given the task of carrying out an impact assessment.

The project – and collaboration

Since NINA•NIKU's expertise covers both professional areas - ie. cultural and natural environments – we wanted to profile this for the client by offering a combined "environmental package". Our aim was to provide the client with a flexible package, divided into modules which the client could choose between freely. Collaboration between NINA and NIKU also led to a saving on costs, by, among other things, co-ordinating meetings with the client and the production of thematic digital maps.

The problem area

The purpose of the project was to map and define sites worthy of preservation alongside the various road alternatives and to work out an impact analysis on the basis of this. The joint assessment of how negative or positive changes would affect the cultural and natural environments was made on the basis of the extent of changes and information regarding preservation value. In addition, the report contained suggestions for possible preventive measures.

This was done

For archaeological sites, field investigation consisted of a general surface survey and an assessment of the area's potential for containing undiscovered automatically protected archaeological sites (both Saami and others). In addition, information was gathered on archaeological sites, local traditions, and past activities in the affected areas. For natural environments, which encompassed mammals, birds, amphibians, fish and plant life, traditional field surveys in the relevant areas were supplemented by dragging landing nets and electro fishing. For both aspects, information was also gathered from relevant literature and professional milieux. The PRA's own methods for impact assessment were used in the execution of the project.

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Satisfaction

Natural and cultural environments with a high preservation value lie within the planning area. The five planned road alternatives have different consequences for them. This was the conclusion presented in NINA•NIKU's report No.

668, which outlined the consequences that the roads would have for the natural and cultural environments. The client subsequently expressed satisfaction with the environmental package because, among other things, it was easier to relate to a single subcontractor who could deal with a number of themes at once, rather than a number of separate subcontractors, each concentrating on a single theme.



Jiehtankallen. Photo: Karl Otto Jacobsen

Success for eagle researchers:

New species of eagle discovered in Indonesia.

Kirsti Kvaløy, Nils Røv, Jan Ove Gjershaug, NINA

After many years of work, they succeeded in the end. NINA scientists Kirsti Kvaløy, Jan Ove Gjershaug and Nils Røv wrote scientific history in the autumn of 2002 when they added two new species to the world's list of eagles. The Flores Hawk-eagle in the Indonesian rain forest is among the world's rarest species of bird.

A Research Council project that began in 1999 set the three NINA scientists on the tracks of two new eagle species in Indonesia. With the aid of molecular-genetic methods they studied the isolated island populations of hawk-eagles. They wanted to find out if the eagles were subspecies of more widespread species or if they represented species of their own, a central question in conservation biology. At the end of the project, some important questions remained unanswered. In order to proceed further, it was necessary to conduct field studies and new analyses. NINA decided that this was so important that the completion of the studies was subsidised by internal funding.

Fieldwork in Indonesia

Røv and Gjershaug travelled to Indonesia to study the two species in the field. They confirmed that adult Flores Hawk-eagles were different to the Variable Hawk-eagles, and that the species' distributions bordered on each other between the islands of Bali and Lombok. With an estimated population of under 100

The characteristic white spot on the wing of the Flores Hawk eagle .

Photo: Jan Ove Gjershaug

"A great deal of attention is given to eagles in Indonesia due to their roles in mythology and as a national symbol."

pairs, this is one of the world's rarest species of eagle. The scientists believe that this should qualify it for the global Red List of threatened species.

The new species of snake eagle were very similar to the Short-toed Eagle from Eurasia, but 20% of the birds had feathers which were entirely dark-coloured, something which is not known from other areas. -Since the population is isolated from the Eurasian eagles and the genetic distance is very great, we regard this as also representing a new species, conclude the NINA scientists.

The results have already been taken into consideration by BirdLife International, which works with the protection of the last remaining rainforests on these islands. A great deal of attention is given to eagles in Indonesia due to their roles in mythology and as a national symbol.



Flores Hawk eagle. Photo: Nils Røv



Research collaboration secures fish resources:

Shared resource management in the Upper Zambezi River, Namibia

Eva Thorstad and Tor Næsje, NINA

The aim of the project is to outline recommendations for management actions in the Upper Zambezi River System, and to secure a sustainable utilisation of the fish resource.

In later years, a major concern has been the possible depletion of fisheries resources in the Zambezi River due to a high population growth and increased fishing pressure. The river system is shared with the neighbouring countries Botswana, Zambia and Zimbabwe, and the fish resources are exploited through subsistence, commercial and recreational fisheries.

The success of future management of the fish resources depends on regional co-operation. When implementing regulations for such complex systems, knowledge of the fish resources and their exploitation are essential.

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and their exploitation are essential.”*

Local involvement

Based on a series of biological and sociological studies, the aim of this project is to outline recommendations for management actions in the Upper Zambezi River System involving local, national and international authorities and stakeholders, and to secure a sustainable utilisation of the fish resource for the benefit of local communities and future generations.

Radio transmitters

Management of a sustainable fishery also depends on a better understanding of the fish migrations and habitat preferences in such a variable floodplain system. The



Tigerfish from the Zambezi River. Photo: Tor Næsje



The Zambezi River is the fourth largest river system in Africa, both in length and catchment area. The river arises in north-western Zambia, passing through Angola, then back into Zambia, before it forms the north-eastern border between Zambia and Caprivi in Namibia from Katima Mulilo to Impalila Island, a distance of approximately 120 km.

behaviour of four cichlid fish species and tigerfish (*Hydrocynus vittatus*) were, therefore, studied by using radio transmitters. The results demonstrate that movement patterns vary between important species and are not restricted to areas within national borders, and emphasise the importance of regional co-management.

At present, the main focus of the studies in the Zambezi River System is to collect information on the subsistence and recreational fisheries, identify and describe stakeholders, and study the effects of the present fisheries on the fish resources.

Collaboration

The studies are mainly a collaboration between the Ministry of Fisheries and Marine Resources (MFMR) in Namibia, and the Norwegian Institute for Nature Research (NINA), with partners from Namibia Nature Foundation, the Ministry of Agriculture and Co-operatives in Zambia and the University of Western Ontario in Canada. The work is funded by MFMR, NINA, the Norwegian Agency for Development Cooperation (NORAD), USAID through World Wildlife Fund "Life Programme" (WWF).





Wild reindeer and traditional hunting practices

- an interdisciplinary project involving cultural heritage research and game research

Per Jordhøy, NINA, Kari Støren Binns, NIKU

Wild reindeer are being wiped out in Norway. The construction of roads, railways and weekend cabin complexes has largely destroyed their habitats. Scientists from NINA and NIKU have joined forces to map sites that reveal traditional techniques for hunting wild reindeer in Norway. The use of old and new knowledge will now help to safeguard the future for wild reindeer.

Background

Due to their nomadic way of living, reindeer require access to extensive areas of undisturbed mountainous terrain. The piecemeal fragmentation of their habitats nonetheless continues through pressure from various forms of development.

Systematizing existing knowledge

Many archaeologists and game researchers have

studied and mapped ancient structures used for trapping reindeer in the mountains, and numerous sites are known in Norway and Sweden. Detailed mapping, systematisation and active use of the material can provide a means to reconstruct the original patterns of the seasonal movement of the reindeer, thus indicating how the reindeer utilised areas on the Scandinavian peninsula in the past. This knowledge can help us to provide better protection for the reindeer in the future.

The data will also tell us more about how wild reindeer and people co-existed earlier.

“The use of old and new knowledge will now help to safeguard the future for wild reindeer. “

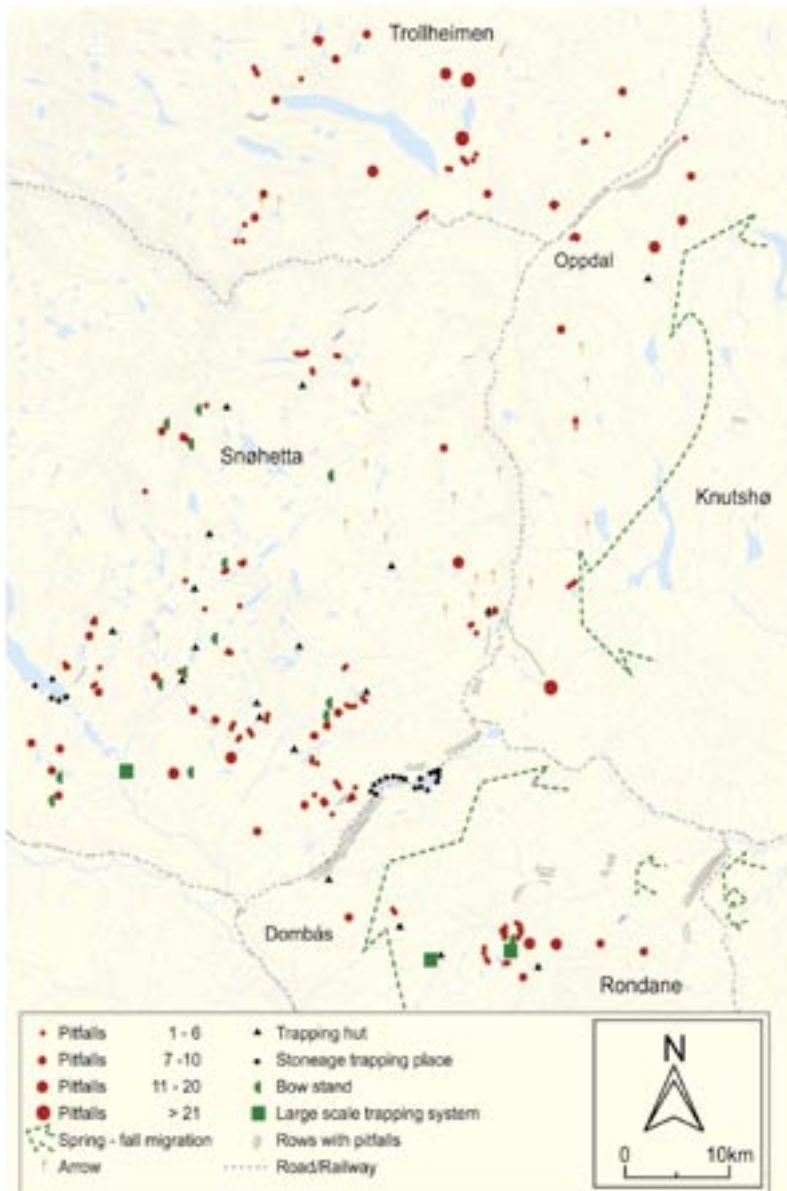
Important network

Building up a contact network was one of the prime tasks at the outset of the project, and co-workers (local experts)

in different parts of the country are able to provide valuable contributions. They form the extended arm of the project and continually pass on results and knowledge from their districts.



A typical pitfall in the row of hunting pits which stretches across the Dovre mountains. Endre Hage, a local surveyor and co-worker, is taking measurements and mapping the structure. Photo: Per Jordhøy



Dovre mountains in Norway.

The Dovre Barrier, showing known pitfalls, rows of pitfalls, other relevant archaeological sites and suggested principal past migration corridors in the Dovre mountains.

The Dovre mountains

We have put priority on one of Europe's largest complexes of reindeer-trapping structures, which stretches across the Dovre mountains from Dombås to Kongsvold. This was done due to the anticipation that these structures, better than any other, would be able to reveal the extent and pattern of past, large-scale migrations between seasonal pastures. These migrations have ceased completely due to modern man-made barriers. Previously, between 400 and 500 pitfalls were known to exist along this axis. Our new survey has so far revealed about 1000 pitfalls here.

Funding and co-operators

The project is principally financed by the Directory for Nature Management, the Norwegian Research Council and the Norwegian Institute for Cultural Heritage Research, but both national and local public authorities and landowners' organisations have

contributed additional funding. The Norwegian Nature Inspectorate, municipal committees overseeing hunting rights, municipal councils and individuals with local knowledge are all important co-workers.

NINA

The Norwegian Institute for Nature Research (NINA) was established in 1988, with headquarters in Trondheim, additional research staff in Tromsø, Lillehammer and Oslo, and a research station for freshwater fish at lms, near Stavanger. NINA employed a total of 151 staff in 2002. Of these, 90 were research scientists, 33 research technicians, and 28 administrative staff.

From 1994 until 2003 NINA was part of the Foundation for Nature Research and Cultural Heritage Research, NINA-NIKU.

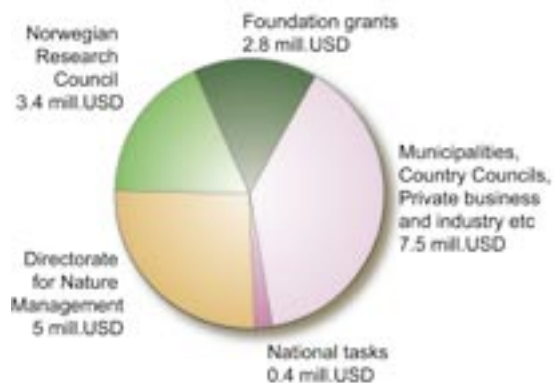
NINAs total operating income in 2002 was approximately 19 mill. USD. The major clients for research and contract work are the Directorate for Nature Management, the Norwegian Research Council, the Ministry of the Environment, and other public sector institutions. On the national market, private industry and local authorities are also important. The Norwegian Agency for Development Cooperation, NORAD, international organisations and the Norwegian Research Council are important clients for our international activities.

NINA abroad

NINA collaborates on an equal footing with leading researchers and institutions in other countries. This contributes to developing and maintaining our researchers' leading-edge expertise, and to solving problems which lie at the forefront of research.

Through collaboration with management and research institutions in developing countries, NINA takes an active part in building competence and capacity, and transfer of technology. Solid expertise anchored in good institutions is necessary for sustainable management of natural resources in developing countries. At the same time it is important that local societies are given responsibility and authority in local management. A multidisciplinary approach involving social and natural sciences is essential in our work.

NINA's total turnover 2002: 19 mill. USD



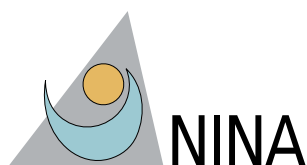
NINA's issues

NINA's expertise is directed towards basic and applied research, consultancy work, and advice to management and industry. Selected issues related to management of natural resources management and biodiversity are, e.g.:

- Land-use and nature management, including landscape analysis, in the coastal zone and on land
- Harvesting and sustainable use of game and fish stocks
- Community development and local participation in resource management
- Research on conflicts in natural resources management, e.g. large predators vs. domestic animals, wildlife vs. agriculture, and outdoor recreational activities vs. forestry, agriculture or urbanisation
- Commercial development related to biological resources
- Red-list evaluations and conservation planning
- Monitoring and time series analyses regarding natural resources
- Environmental databases – development, operation, use, and public information
- Pollution impact analysis and monitoring, in particular acid rain, heavy metals, radioactivity, and eutrophication
- Environmental impact assessments connected to infrastructure development and land-use changes

NINA's collaborative network in Norway and abroad:

- NODE is a multidisciplinary research and consulting consortium consisting of The Chr. Michelsen Institute (CMI) and Centre for International Environment and Development Studies (NORAGRIC), in addition to NINA.
- ENVIRA is a strategic alliance between NINA and five other institutes working in the field of environment: NIVA (The Norwegian Institute for Water Research), NILU (The Norwegian Institute for Air Research), NIBR (The Norwegian Institute for Urban and Regional Research), NIKU (The Norwegian Institute for Cultural Heritage Research), and Jordforsk (Centre for Environmental Soil Research).
- NINA is involved in collaborative projects and programmes with institutions in approximately ten developing countries in Central America, Africa and Asia, as well as a number of institutions in developed countries.



Norwegian Institute for Nature Research

Head office:
Tungasletta 2, N-7485 Trondheim, NORWAY
Phone: +47 73 80 14 00. Fax +47 73 80 14 01
<http://nina.no>

