

RAPPORT

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Arenas for Sustainable Use of All Values in the Landscape

- the Model Forest concept as an example



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Preface

In order to turn the vision of sustainable development in exploitation and conservation of natural resources into reality, there are practical projects undertaken internationally and in Sweden in accordance with existing conventions and guidelines. In forestry it is to a large extent a question of turning theories of sustainable forest management into daily practical work in the forest. One of the prerequisites for success in this work is a possibility to work along different geographic gradients and in landscape perspectives with different data and structural make-up. You also need access to a work model and arenas¹ where the interests and abilities of different stakeholders (land owners, authorities, organisations, researchers, etc.) meet and where they can unite behind strategic, tactical and operative guidelines.

In recent years we have participated in development and research around various kinds of landscape arenas. The purpose of this report is twofold: (1) to describe to a wider audience one such arena – The Model Forest – a concept developed in Canada in the 1990's; (2) to encourage others to continue their work and evaluation of different types of landscape arenas in Sweden and elsewhere.

The Model Forest has the potential of becoming a forceful instrument in the work to forward the development of sustainable forest management in a local, regional, national and global perspective. At this time we are engaged in identifying a North European and Swedish profiled Model Forest profile, with the aim of creating a tool for sustainable forest management and to use the forest as a resource for regional development.

The authors, March 2006

¹ An arena can be described as a special project or initiative working toward a specific goal, for example sustainable forestry, sustainable use of natural resources or sustainable development.

Summary

Forestry as a concept has expanded. "Sustainable production of timber", "Production and the environment", "Sustainable development" and "The Forest for Everybody" are catch phrases that mirror the political development in the area of forestry in Sweden since the early 1970's. The driving force is society's wish to have forestry deliver an increased array of goods and services. A number of international guidelines, Swedish environmental goals and voluntary certification standards describe this in various ways.

This new broad definition of forestry demands a greater variety of methods of production and conservation of the forest. Different categories of owners and users, different types of forests and different regions in Sweden and Europe demand different adaptations. It also entails increased demands for planning in a landscape perspective, both in terms of the size of the area to be considered and in the sense that more people representing different interests and values must have their say.

The Model Forest concept developed as an effort to turn the guidelines for Sustainable Forest Management (SFM) into practice and thereby contribute to sustainable development locally and regionally. It is a long term process in an arena where different stakeholders work together to develop and conserve all the values of forests within a specific geographic area. A Model Forest is a meeting place where land owners and users of different kinds, researchers, as well as other stakeholders, can exchange knowledge and experience. A Model Forest should be "at the frontline of development" as a neutral platform using the latest knowledge about forests, forestry, landscapes and their development in an economic, ecological and socio-cultural perspective. A Model Forest can further be used by science to identify knowledge gaps and develop new knowledge. Specific practical questions identified by the stakeholders should be raised and solutions developed.

The object of this report is to describe the Model Forest concept as an arena for sustainable forestry in a landscape perspective. It presents as a concrete example the "Vilhelmina Model Forest", the first European member of the International Model Forest Network (IMFN). It also gives an overview of ongoing efforts at a regional, national and international level to create Model Forest type arenas for sustainable development of goods and services in the forest landscape.

1 Arenas for sustainable landscapes

1.1 Widening the concept of forestry

The last decades of the 20th century saw a rapid, noticeable widening of the concept of forestry. "Sustainable production of timber", "Production and the environment", "Sustainable development" and "The Forest for Everybody" are catch phrases that mirror the forest policy development in Sweden since the early 1970's. The driving force behind this visible trend was and is still society's wish to have forestry deliver an increased array of goods and services. A large number of international guidelines and environmental goals as well as voluntary certification standards describe this in various ways (Andersson et al. 2005).

This new wider definition of forestry demands an increased variety of production methods and conservation alternatives. Different categories of owners and users, different types of forests and different regions in Sweden and Europe demand different adaptations. It also entails increased demands for planning in a landscape perspective, both in terms of the size of the area to be considered and in the sense that more people representing different interests and values must have their say.

In earlier days, local, regional and national factors structured forestry in a particular area. Today international companies and organisations have a major impact on the development of forestry and the countryside, even in the most remote regions of a country.

To make all forest related stakeholders cooperate and jointly affect the development from their different perspectives is a great challenge (Angelstam, 2004). The international term for society's wish that the forest should answer to economic, ecological and socio-cultural demands is Sustainable Forest Management (SFM).

The Model Forest concept grew out of an effort to turn the guidelines for SFM into practical action and thereby work for regionally and locally sustainable development. Biospheres Reserves² and Leader³ are two other concepts with the similar aim, but inspired by other policy aspects.

The object of this report is to describe the Model Forest concept as an arena for sustainable forestry in a landscape perspective. It presents as a concrete example the "Vilhelmina Model Forest", the first European member of the International Model Forest Network (IMFN⁴). It also gives an overview of ongoing efforts at a regional, national and international level to create Model Forest type arenas for sustainable development of goods and services in the forest landscape (Angelstam et al. 2006).

² A Biosphere Reserve is an effort to safeguard the functionality of areas being set aside for nature conservation and cultural values and at the same time supporting local and regional development. The term was coined by UNESCO's "Man and Biosphere programme" in the mid-70's. The first Biosphere Reserve was created in 1976 (UNESCO, 2002). Lake Tornea and Kristianstad Vattenrike are the two Biosphere Reserves in Sweden. Feasibility studies are ongoing in several parts of Sweden.

³ Read more about Leader (EU, 2000).

⁴ See IMFN home page: www.imfn.net

1.2 What is the meaning of the Model Forest concept?

A Model Forest is a partnership for sustainable forestry with a holistic perspective at a landscape level. It is a long term process consisting of an arena where different stakeholders work together to administer and develop all the forest's assets in a geographic region. A Model Forest is a meeting place where land owners and various users, researchers and other stakeholders can exchange knowledge and experience. A Model Forest should be at the "frontier of development" as a neutral platform using the latest knowledge about forests, forestry, landscape management and development using a balanced economic, ecological and socio-cultural perspective. For science a Model Forest is a way of identifying knowledge gaps and produce new knowledge. Practical and specific questions identified by the actors in the arena should be pursued and solutions be presented.

A model forest is therefore not just a forest and forestry concept, it also includes usage of the landscape for other purposes as well as refinement of forest products; Model Forest is in other words a concept where the forest is viewed as a resource for all assets. To achieve a good balance between production assets, ecological assets and socio-cultural assets work is carried out at a landscape level. It is therefore correct to state that a Model Forest is about a landscape where a forest is a component together with open land, water and other natural resources as well as local communities and other infrastructure (Svensson et al. 2004).

A Model Forest is not a restriction on ownership. It cannot direct land owners or other stakeholders. The factual structure of the area in terms of land ownership, development plans and possible conflicts of interest are the starting point and prerequisite for the project. A Model Forest should as much as possible be representative for a larger area, for example a region, so that experience, new knowledge is possible to scale up. It should therefore not be an arena with a specific and exclusive concentration of assets.

Building networks and exchanging experiences and knowledge at a local, regional, national and global level is an important part of Model Forest work. Every member of the network must stand to gain as well as the general development of sustainable forestry in the area.

The experience from Canada, Chile and Russia is that the establishment of a working Model Forest takes time. Creating a partnership between the stakeholders in the chosen geographic area and defining the direction of the work takes two to three years. Getting underway with serious implementation of the plans takes another two to three years and a few more years are needed to establish work routines within the partnership. These three steps in the development took about twelve years in the case of the Komi Model Forest in Russia.

Facts

A Model Forest is expected to be a/an:

1. regional vision for sustainable forestry regionally
2. ecosystem approach for a landscape including forests, agricultural land, communities and water
3. arena that identifies problems, develops solutions and shows results
4. tool for local and regional development
5. holistic perspective
6. common approach to solve conflict
7. bottom-up perspective
8. neutral platform
9. active partner in local, national and global development of sustainable forestry and other natural resources

1.3 Model Forest development in Sweden

1.3.1. Vilhelmina – Europe's first Model Forest

In February 2004 Vilhelmina Model Forest (VMF) applied for membership in the International Model Forest Network (IMFN, see Appendix 1). The same year in September VMF was inaugurated as Europe's first Model Forest. VMF is thereby a part of a network with the aim to develop partnerships and arenas for sustainable forestry in a landscape perspective active in several countries and continents. VMF is taking shape in large and small aspects. The local Sámi communities have signed a cooperation agreement with Cree Indians in the Prince Albert Model Forest in Canada with the aim of strengthening each other's cultures. Activities are now gradually being initiated in the municipality of Vilhelmina, the geographic home of VMF.



Figure 1. Participants in the inauguration of Vilhelmina Model Forest in the autumn of 2004 outside the exhibition room in Kyrkstan ("Church Town").

The aim of VMF is to attain a sustainable usage in a landscape perspective with local influence and activity. The motto is "use without misuse". The key is to find a strategy giving local stakeholders a freedom of choice in their usage of natural resources. The work is focused on developing processes for partnership in planning, practical application and research efforts in various aspects and different parts of Vilhelmina municipality. Cooperation and teamwork are basic prerequisites for success in sustainable use and minimizing conflict between different stakeholders (Sandström et al. 2003). Research efforts and studies can stimulate new ways of thinking about how the landscape can be used for production of goods and services. Knowledge can be spread conventionally as education, but also by using the forest as a classroom. An enhanced dialogue between the different stakeholders in the forest using this new knowledge is a lead star in the process.



Figure 2. Logotype for VMF.

1.3.2 Bergslagen Model Forest

According to the National Encyclopaedia Bergslagen is a "not clearly defined geographic entity in central Sweden, presently including northern and western Västmanland, southern Dalarna and south-eastern Värmland". Bergslagen has been a mining district since mediaeval times. The name Bergslagen comes from the word *bergslag*, and old word for a mining corporation, from *berg* (mountain) and *lag* (law). The area in question was united by a common corporate law, the *bergslag*.

The business life in Bergslagen is characterized by an ongoing deep structural renewal. In 2001 the need for fresh ideas in sparsely populated parts of Bergslagen, areas in the catchments of lake Mälaren, Dalälven and Klarälven rivers lead to the creation of a forum for local development. The municipalities of Ludvika and Filipstad, the earlier landowner, now the local manager of the forest land, StoraEnso AB, the tourism company Säfsen Resort and the Swedish University of Agricultural Sciences together founded Stiftelsen Säfsenskogarna (Säfsen Forest Foundation, www.safsenskogarna.se). When VMF applied for membership in the IMFN, the Säfsen Foundation also expressed an interest in joining the network (Svensson et al. 2004).



Figure 3. Inauguration of Bergslagen Model Forest.

In spring 2005 a feasibility study was completed about the Bergslagen Model Forest (Angelstam and Törnblom 2005). The study was financed by Ludvika municipality and the Dalarna region. The vision was to present good examples of "forest use for everyone" based on a series of interviews and to develop methods for management of the different nature and cultural values of the landscape. The interviews were primarily directed at different owners and users in Fredriksberg and the Säfsen forests, but also in other parts of Bergslagen. The object was to find space for the development of new and existing branches of business built on a synthesis of experience and knowledge about how to create economically, environmentally and socio-culturally sustainable landscapes.

In January 2006 the Säfsen Forest Foundation decided to go forward with plans to apply for membership in IMFN. An official application was sent to the IMFN Secretariat on March 6, 2006 (appendix 2). The work to create a strong Model Forest in Bergslagen is now under way.

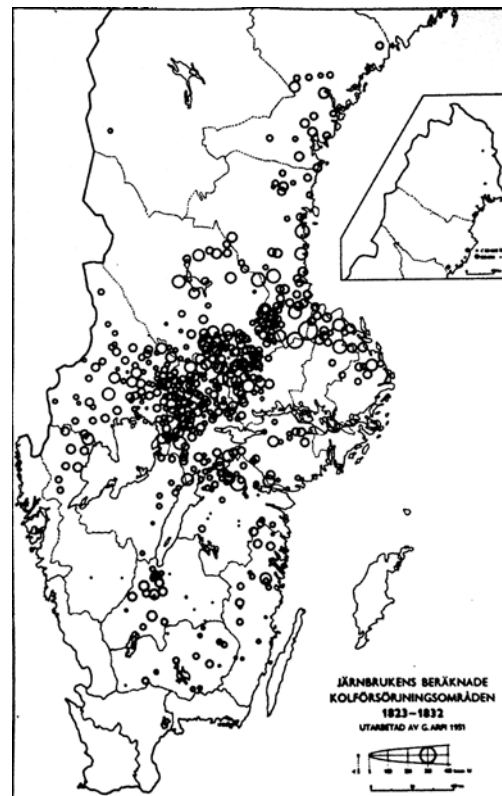


Figure 4. Map of the relative consumption of charcoal by iron furnaces during 1823-1832.

The following areas of cooperation have been identified:

1. Rural development to create more job opportunities and a living countryside.
2. Sustainable development through planning on varying scales for different problems, i.e. the scale and the area are dependent on the type of problem in question.
3. Education as a way toward planning, sustainable development and a living countryside.
4. Protection of important values for tourism that will play a more important role in the rural economy. This is of particular interest in Bergslagen because of its relative proximity to a large client segment in Europe.
5. Small scale trade within IMFN and other networks.
6. Water questions. Especially in the forested areas it is of particular interest to see how forestry can be managed in such a way that it doesn't ruin parts of or entire water systems. Healthy water in an attractive environment can stimulate activity in the tourism sector.

Work will be carried out in different dimensions: locally, regionally, nationally and internationally. It is founded on an active merging of visions and practice among owners, municipalities and the academic world. There is a need for investment on all this levels.

1.3.3 Helgeå Model Forest

Sweden is an elongated country with considerable difference from North to South. A major part of the Skåne region, parts of the regions of Blekinge, Halland and Kalmar belong to the so-called nemoral zone with naturally mainly broad leaved deciduous forests. From a nature geographic perspective, this area belongs to the European continent. Man's influence on the forest landscape is more visible in these southern parts. This fact has a major impact on future development.

The position as a national outpost in the South gives the area unique opportunities, particularly if you take a wide view of what forestry is, including all the goods and services that emanate from the forest landscape. The proximity to the European continent and an increase in the number of visitors and tourists offer new challenges for the land owners and other stakeholders.

In late autumn 2005 a feasibility study was conducted with the aim of gathering information for the possible development of a Model Forest in Skåne. Particular attention was paid to the six criteria that make up the Model Forest concept (see 5.3). The study showed for instance that:

- the Kristianstad Vattenrike Biosphere Reserve would be an excellent complement to the Model Forest concept and should be included as a partner

- there are a number of possible stakeholders, who through a Model Forest would have an arena where they could discuss their interests in a new way
- a Model Forest can give the social values of the forest a new platform

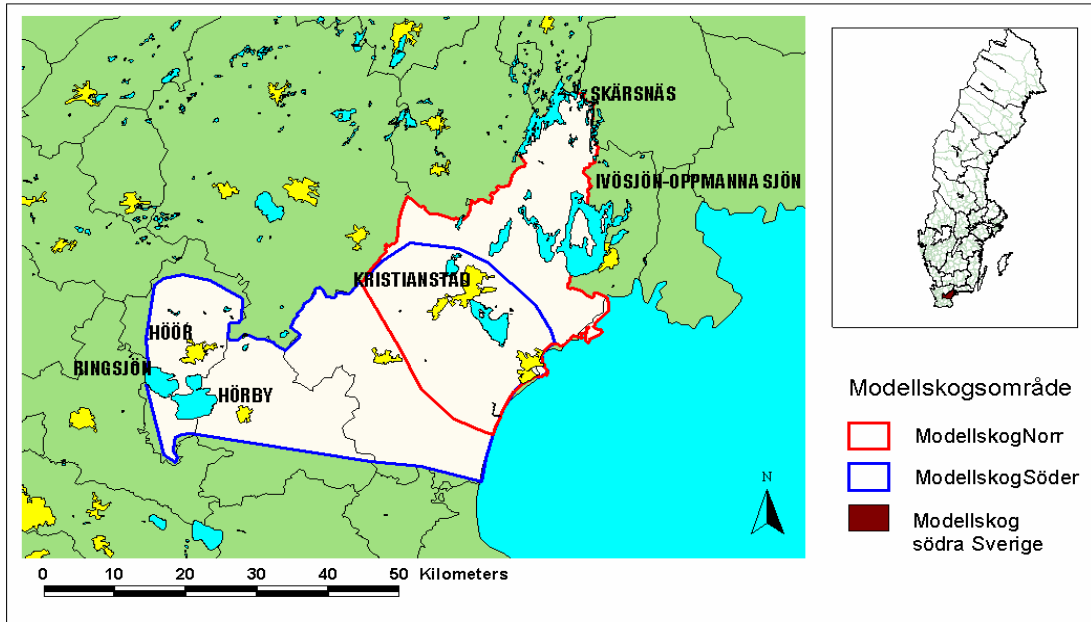


Figure 5. Map of possible outer limits for the Helgeån Model Forest.

The feasibility study also showed a multitude of projects that could be directly linked to a Model Forest. Some of these have been implemented, others are on-going and the criteria give ideas for a number of new angles on sustainable forestry. The conclusion was that central and north-eastern – following the drainage area of Helgeå river – Skåne are well suited as a location for a future Model Forest.

Model Forest is a process grounded in a landscape perspective and a broad knowledge base. The Model Forest work in Skåne is at an early stage and it is therefore important to keep the process going. One way of doing this is within the framework of the Baltic Forest project (see 4.3), financed by Interreg IIIB (EU). In Baltic Forest there are many interfaces between different specialities pertaining to sustainable forestry. Oftentimes diverging interests from different specialities are considered simply as a problem, but with the help of the Model Forest concept these problems can be turned into opportunities.

2 International Model Forest Network

A request for proposals for the study of sustainable forestry in Canada in 1992, resulted in ten areas that were selected as a network. Together they reflect a great regional variety in ownership, types of forests and historic development in this huge country. A background to this development was the 1987 Brundtland report on long term sustainable development. This became the Canadian Model Forest Network (CMFN), which today includes eleven Model Forests.

At the Rio conference 1992 Canada introduced the Model Forest concept internationally. Canada initially invited Mexico and Russia to establish Model Forests within the International Model Forest Network (IMFN). In 1994 a Secretariat was formally established in Ottawa, Canada. Today Model Forest is a global concept. There are forty Model Forests in North America, South America, Europe, Africa and Asia, including Southeast Asia, and with several under development (fig. 6, table 1). Totally more than 26 million hectares are included in the IMFN, which is more than the total productive forest area in Sweden.

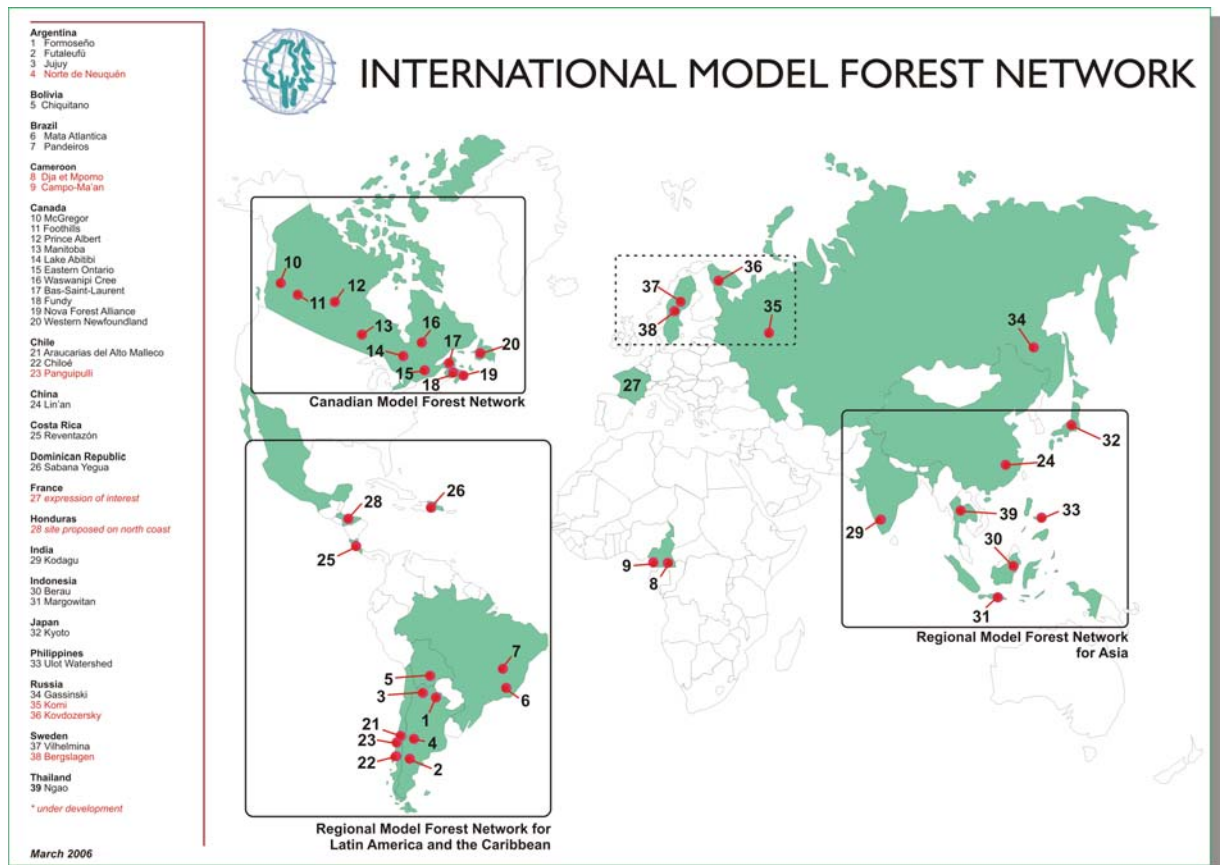


Figure 6. Map of Model Forests (2006). The three full rectangles within the map show regional networks within IMFN, in Canada, Latin America and Southeast Asia. The dotted rectangle is the embryo of a possible fourth regional network, which has the working name "Northern EurAsia Initiative" (NEA Initiative). It was first discussed at the IMFN Global Forum in Costa Rica 2005.

Table 1. List of 40 Model Forest in 19 countries (www.imfn.net 2006-03-06)

Country	Model Forest	Area (Ha)
Argentina	Formoseño	800 000
Argentina	Futaleufú	738 000
Argentina	Jujuy	130 000
Argentina	Norte de Neuquén	no data
Bolivia	Chiquitano	no data
Brasil	Mata Atlantica	no data
Brasil	Pandeiros	no data
Chile	Chiloé	918 000
Chile	Araucarias del Alto Malleco	360 000
Chile	Panguipulli	no data
Costa Rica	Revantazón	150 000
Dominican republic	Sabana Yegua	166 000
Philippines	Ulot Watershed	86 514
France	no data	no data
Honduras	Atlántida	no data
India	Kodagu	no data
Indonesia	Berau	165 930
Indonesia	Margowitan	no data
Japan	Kyoto	no data
Camerun	Dja et Mpomo	no data
Camerun	Campo Ma'an	no data
Canada	Western Newfoundland	923 000
Canada	Foothills	2 750 000
Canada	Waswanipi Cree	3 300 000
Canada	Lake Abitibi	1 200 000
Canada	Prince Albert	360 000
Canada	Nova Forest Alliance	458 000
Canada	Fundy	420 000
Canada	Eastern Ontario	1 530 000
Canada	McGregor	7 700 000
Canada	Bas St-Laurent	113 100
Canada	Manitoba	1 048 000
China	Lin'an	312 000
Mexico (not active in IMFN)	Mariposa Monarca	795 000
Mexico (not active in IMFN)	Sierra de Quila	15 192
Russia	Gassinski	400 000
Russia	Komi	no data
Russia	Kovdozersky	no data
Sweden	Vilhelmina	879 000
Sweden	Bergslagen	no data
Thailand	Ngao	175 159

3 Vilhelmina Model Forest – a history

3.1 Overall planning in Vilhelmina (1990-94)

The need for a plan for the exploitation of land and joint usage of the mountainous areas in the municipality was highlighted in different fora during the 1980's and 1990's. The *riksdag* (Swedish parliament) passed a bill on the "mountainous" forests in 1985. Based on the requirements in the "Law on Natural Resources" the government in 1987 published a paper demanding that a balance should be struck between conflicting interests in these areas and the result reported back before July 1 1991.

In 1990 Vilhelmina municipality published its report on "Joint Land Usage within Vilhelmina Municipality". The documentation was in two sections. One section was an inventory describing various areas of interest with the sectors concerned. The second section proposed a plan of action for joint usage and regard for conflicting interests in the future development of the land. This report was included in the municipal overall plan and has been updated as a central tool for local development.

3.2 A Landscape Perspective in Vilhelmina (1995-2003)

The establishment of the Vilhelmina Model Forest is a natural continuation of the project "Sustainable Forestry in a Landscape Perspective" (The Vilhelmina Project 1995-98). This project was initiated as an effect of the new conditions created by the national forest policy of 1993, which equated production and environmental goals.

When the new forest policy came into effect it made more rigorous demands on individual land owners and other stake holders to act responsibly. The Swedish Forest Agency (then Skogsvårdsstyrelsen, later Skogsstyrelsen) saw a need for cooperation over larger geographic areas and a more active participation from different stakeholders to make the new policy effective.

With this background a 120 000 hectare area was established in Vilhelmina for demonstrations and research, where forestry in practice could be shown and studied. The area is adjacent to Lake Malgomaj on both sides. It was chosen because of its high proportion (64%) of old natural forest (more than 80 years). It is a landscape typical of the northern Swedish inland, containing forests, water and mountains, dominated by coniferous trees, but with a large variation of forests, types of nature and combination of species.



Figre 7. View from the Stalon mountain in Vilhelmina.

3.3 Inauguration and establishment of Vilhelmina Model Forest (2004-05)

Almost ten years after the initiation of the "Sustainable Forestry in a Landscape Perspective" project another step was taken toward securing an economically sustainable forestry with a balance between all the values of the forest. In February 2004 the Swedish government and Vilhelmina municipality applied for membership in IMFN through the establishment of the Vilhelmina Model Forest (VMF). In September 1994 VMF was inaugurated in connection with an international seminar.

A joint strategy and stakeholder cooperation is under development. Within VMF the contacts with Canada have been intensive. Representatives both for CMFN and IMFN have visited Vilhelmina on three occasions. A cooperation agreement has been signed between the Sámi population of Vilhelmina and the Cree Indians from the Prince Albert Model Forest. Contacts have also been established with Russia, Latin America and France.

The continued activity in VMF (see 5) is linked to the EU project Baltic Forest (see 4.3), which has come about partly as a result of the establishment of VMF and a need to highlight the ideas and methods behind arena concepts like Model Forest, which offers a chance to turn theories about sustainable forest management into practice.

4 National and international networks

4.1 Arenas for sustainable landscapes in Sweden

4.1.1 Model Forest

In Sweden there is an active dialogue between different stakeholders about how to administer the Model Forest arena concept. For the VMF it is the Swedish Forest Agency (Skogsstyrelsen) that has been the leading party in this development. In Bergslagen, after the initiative taken by Ludvika municipality and the Dalarna region, it is the Säfsen Forest Foundation that has developed into a Model Forest (in the process to become a member of the IMFN since March 1, 2006). Finally, there is similar work under way in southern Sweden.

Model Forest has the potential of becoming a forceful instrument in the work to push the development of sustainable forestry on a local, regional, national and global level. To mirror the great variation between Swedish landscapes a key idea is to focus on the three major bio-geographic and cultural-historic zones in Sweden; *Limes Scanicus* in southern Götaland (the border between the nemoral forest in the South and the boreonemoral region), *Limes Norrlandicus* (the south border of the boreal forest) between Bergslagen and the region around lake Mälaren in the South and the *cultivation limit* at the eastern slopes of the mountains in the North (Angelstam and Törnblom 2004).

4.1.2 Biospheres Reserve

A Biosphere Reserve is a landscape with a unique biological variation or cultural environment with zonation to promote a sustainable use. These zones are known as a core area, a buffer zone and a transition zone. The core area is protected and the other zones complete the protection by offering a soft transition to the outside world as well as supporting structural functions by providing for instance migratory routes for fauna and flora.

Nowadays the zonation of Biosphere Reserves is often clustered, since this is often most practical considering the physical configuration of the area. There are now over 480 biosphere areas in more than hundred countries. Biospheres have three main functions: 1) Biodiversity conservation, in terms of structures, processes, species and genetic variation, 2) Sustainable development, 3) Arenas for research, long term testing and collection of data as well as providing education and information about environmental management, conservation and sustainable development locally, regionally, nationally and internationally.

Biosphere Reserves are organized in national, regional and an international network. The idea is that representatives of different areas can exchange information and experience. A link to local partnerships and networking with other organizations is encouraged. Biospheres Reserves can be seen as a practical application of the convention on biodiversity (CBD), Agenda 21, the ecosystem approach and the Malawi principles.

In Sweden there are at present (2006) two biospheres, lake Torne and Kristianstad Vattenrike ("waterland") and a candidate area, Nedre Dalälven river. There are also feasibility studies and initiatives for the creation of several more biosphere reserves. The Swedish Environmental Agency (Naturvårdsverket) supports the Biosphere Reserve concept as a way of obtaining sustainable and practical solutions. Model Forests and Biosphere Reserves should not be seen as competing concepts, but complementary. There are several good examples from around the world of successful cooperation between the two concepts (UNESCO 97; UNESCO 2002; Axelsson and Angelstam 2005).

4.1.3 Other arenas and initiatives

There are other arenas and initiatives working toward sustainable usage of natural and environmental resources, for instance Agenda 21, Eco-municipalities, National Parks, Landscape Ecological Core Areas (LEKO), Ramsar wetlands, Eco-parks, Regional and local co-management of fishery, World Heritage Sites, Pan Parks, Long Term Ecological Research (LTER) areas as well as the EU funded Interreg and Leader programmes. A cooperation project lead by Sveaskog (the Swedish state forestry company) called Leipipir Model Forest is an effort to develop a practice for sustainable use of forests and other land through a dialogue with local actors and other stakeholders.

There seem to be good opportunities for an exchange of experience between these various types of arenas and initiatives.

4.2 A Barents perspective on sustainable forestry

The forests in northern Scandinavia and Northwest Russia are an important economic resource and a valuable asset for economic development. At the same time there are forests in this area of great natural value, some of the most natural in Europe. Large portions are relatively unaffected by intensive forestry and have for this reason great ecological value and also call for important research efforts.

The conditions are however changing rapidly. The Barents region is 755 600 km², i.e. almost twice the size of Sweden. From 1999 the countries in the Barents region (the northern parts of Norway, Sweden, Finland and Russia) have been discussing new ways of tackling regional cooperation, while maintaining a sustainable forestry. In this connection it was decided to work along using the Model Forest approach. This work started in March 2000.



Figure 8. Map of the Barents region.

EU, Barents Euro-Arctic Council (BEAC) and other governmental superstructures identified the need to establish a Model Forest network in the Barents region. The main purpose for the Barents region is the development of sustainable forestry and a vision of using the forests as a resource while maintaining biological diversity. An important goal is also to enhance regional cooperation for sustainable forestry in one of the most forested areas of Europe. The Barents Forest Sector Task Force (BFSTF) working group within the BEAC has been continually informed of the development of the VMF and has also been actively involved at various stages of the work (Anon. 1999, Anon. 2001).

4.3 Baltic Forest

Baltic Forest (Forests as a Resource for Sustainable Development and Spatial Planning in the Baltic Sea Region) is a project within the "Baltic Sea Region Interreg IIIB Neighbourhood Programme". It is also a Tacis project and a project within Baltic 21, the sectors for forests and business.

Baltic Forest is a platform project intended to develop new insights and knowledge about sustainable forestry in the Baltic Sea region through trans-sectoral and trans-national cooperation. It has five themes: 1) Forestry and production, 2) Ecology and environment, 3) Social aspects. These three themes reflect ideas of sustainable forestry according to international standards. To integrate these three parts there are two additional themes: 4) Small scale forestry and small and medium-sized companies based on raw materials from the forest and 5) The Model Forest concept as a tool for sustainable forestry and regional development.

Baltic Forest has ca €2.3 mn in financing for 2006 and 2007. 24 organizations from Sweden, Finland, Russia, Estonia, Latvia, Lithuania, Poland and Germany take part. The project is parallel and integrated with ongoing national and international R & D projects. The broad thematic application is meant to lead on to the development of new and complementary business or research oriented projects during the current period and beyond 2007.

Baltic Forest is lead by the regional administration in Västernorrland and in Sweden the work is concentrated in the area of central Norrland and Västerbotten, from the coast to the mountains as well as southern Dalarna and the southern border of the boreal forest in Bergslagen. Some activities will be carried out in southern Sweden to study national conditions and find natural links between the countries around the southern Baltic. In Sweden, besides the National Forest Agency and the region of Västernorrland, other organizations involved are the Faculty of Forestry (Skinnskatteberg and Umeå) within the Swedish University of Agricultural Sciences, Mid-Sweden University, Ludvika municipality, Vilhelmina municipality and Norrskog. The diversity of organizations and universities, key stakeholders in forestry, regional and local administrations involved on the Swedish side is a good reflection of the transdisciplinary effort behind Baltic Forest.

Baltic Forest has raised considerable interest, both within the participating countries and internationally, via contacts with IMFN and other parties. Some sixty people from 31 organizations in 9 countries participated in the inaugural seminar in Sundsvall, Sweden on Feb. 2-3 2006 (www.balticforest.net).

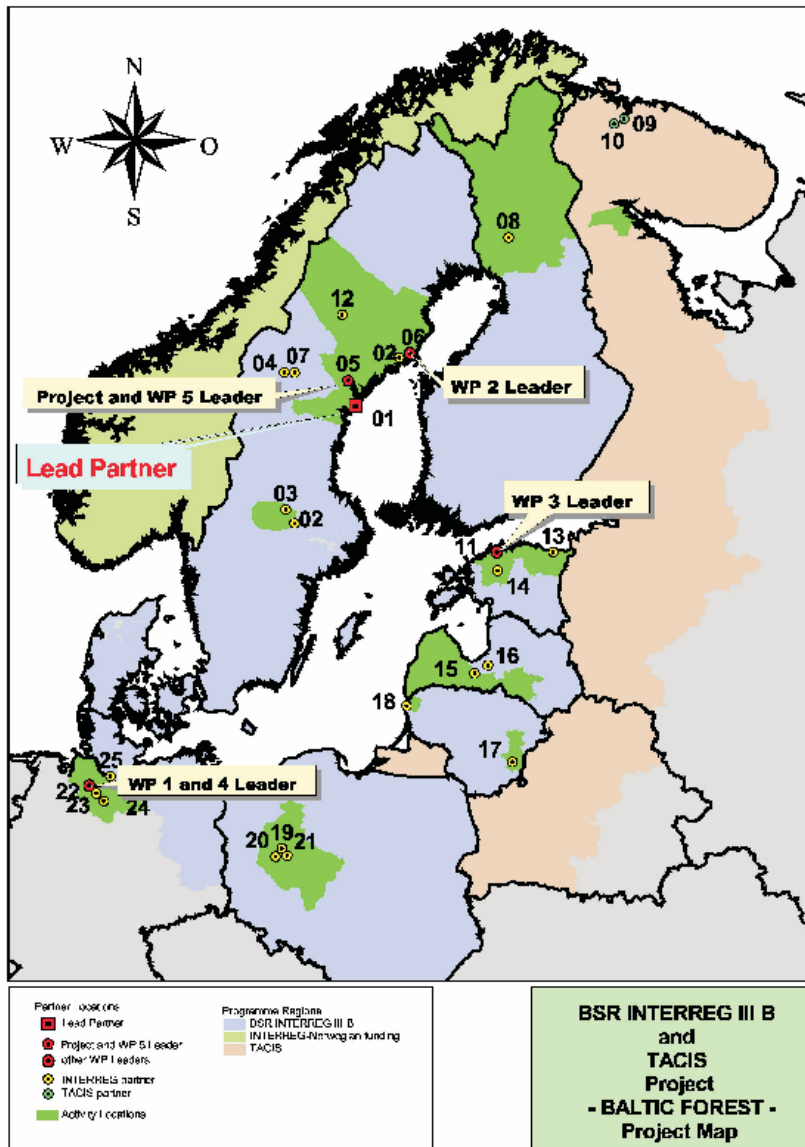


Figure 9. Baltic Forest. Countries, areas and location of participating organizations.

4.4 A network of landscape arenas in Europe?

The EU Forest action plan states that forests in a broad sense are an important resource for all of Europe (Biro et al. 2005). In fact, EU became a major force in forestry as late as 1995, when countries with a large forest production and industry became members, such as Sweden, Finland and Austria. EU's expansion in 2004 has further enhanced this situation, and strengthened the role of forestry in European rural development. Russia's importance as a source of timber for Europe must also be taken into account. This development is reflected by the appearance of various initiatives to develop regionally suitable forms of sustainable development, based on goods and services from the forest.

In Sweden several forestry companies carried out projects in the early 1990's to develop methods for ecological landscape planning. STORA's Grangärde project and Domänverket's Särna project are two examples of this.

In Russia there are several initiatives aimed at sustainability of the forest as a resource. Two of the best known are the Pskov Model Forest, administered by WWF and Komi Model Forest run by the Silver Taiga Foundation. The latest is the Kovdozersky Model Forest in north-western Russia, near Murmansk.

In the Ukraine there is a term which translates as National Natural Park, which is similar to a Biosphere Reserve. In the Carpathian Mountains there is a clear interest among forest management units to learn more about the Model Forest concept (Elabakidze et al. manuscript).

In Lorraine in north-eastern France the Vosges du nord Biosphere Reserve has expressed an interest in joining the Model Forest network, as well as the Parc Naturelle Regional du Morvain in western France.

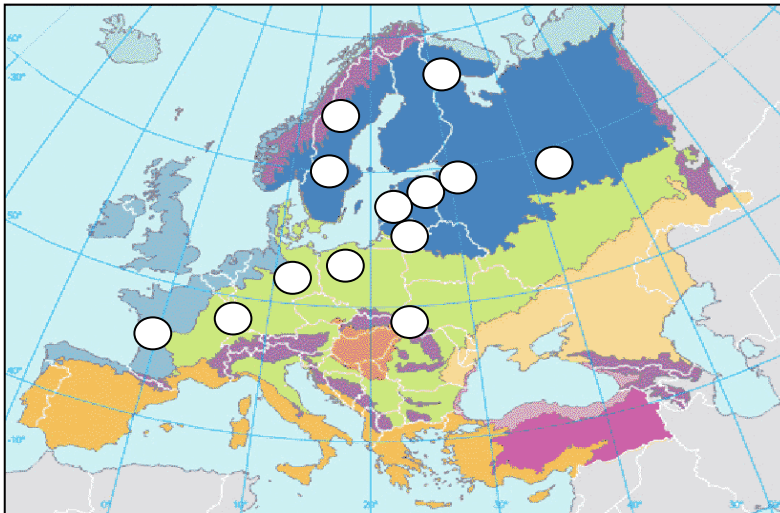


Figure 10. European forest areas and location of arenas aiming at sustainable forestry mentioned in this paper.

4.5 Tourism – production of services on an international market

The landscape is a resource that produces many kinds of goods and services. Many people seek a complement to traditional forestry, seeking to use this resource in new ways by new enterprises. Tourism can be seen as one way of using basic resources such as forests, land, lakes or streams. Unlike many other branches, tourism is mainly non-consuming – you use the forest without cutting it down, you put back fish you have caught, for example – which leaves the basic resource to be used over and over again.

Statistics from the UN organ World Tourism Organization shows that the number of tourist trips in the world has grown from about 20 million per year in 1950 to over 700 million today- According to World Tourism Organization forecasts, there will be 1.5 bn yearly tourist trips made in 2020, mainly because countries

like China, India and Russia join the international travel market. A strong trend in this development is that travel is split on many more locations than it was before.

In 1950 70 per cent of all tourism went to the five most popular tourism countries. Today the same figure is 35 per cent. This enormous growth means that today almost all tourist spots - or countries – compete with each other in the tourism market. The conclusion is that only if you have a good enough product, a sufficiently exciting experience or interesting environment to offer can you win in this competition.

Tourism in Sweden turns over about SEK 170 billion (USD 24 bn) yearly. The main part of tourist consumption comes in three sectors: guest nights and eating out, transport and shopping. A small part of the money spent by tourists goes to a post statistically known as "other public services". It is about SEK 8 bn (USD 1.1 bn) or 5 per cent of the total turnover in the tourism sector. It may seem a small amount in the overall equation, but it is in fact the status of this sector and its content that is the driving force behind the whole system. These are the sightseeing objects and attractions that draw visitors and make them spend money on living, food and travel. That is how the tourism sector works. That is why you cannot just look at the amount of money earned on selling fishing permits if you want to evaluate fishing tourism and sports fishing.

Tourism is a service and thereby labour intensive. One result of increased tourism is therefore that it creates employment. Statistical calculations made by SCB (Statistics Sweden) for the Swedish Tourism Board shows an increase in employment in the sector of 24 per cent over the last decade. Total employment in Sweden went up by five per cent over the same period. Tourism gives work in places where there are few alternatives. One typical example is the Älvdalen municipality in Dalarna, where there are about 150 companies registered. 140 of those have a connection to tourism or the tourism business. It is no longer the traditional sectors that create new jobs in these municipalities.

Within IMFN there is currently work going on to develop strategic approaches to establish Model Forests as economically self-sustainable units or at least make them earn money from some of the services they provide. Available funding is often limited in time but a Model Forest approach to improved landscape governance is a long term effort. This is a consequence particularly of countries in the developing world wanting to establish Model Forest projects. This is also highly topical in a North European perspective. It has been put forward in the above mentioned Baltic Forest project as a Model Forest approach to regional development and maintaining a living countryside.

5 Action Plan for the Vilhelmina Model Forest – a Draft

5.1 Vilhelmina Model Forest profile

Vilhelmina MF was established in 2004 and is still developing. One of the steps taken is to profile the VMF, i.e. identify what is specific for the VMF and North-west Sweden and what is important to highlight in a global perspective within the IMFN:

1. VMF contains large areas of forest that are to a lesser or a moderate extent affected by clear cutting (Swedish: trakthyggesbruk). There is a local tradition that goes far back in history to use alternative methods of forestry that are supposed to allow for a better balance between various values and interests.
2. VMF contains large areas of forest with high nature and landscape value. There are preconditions for experiments and studies of effects from different kinds of forestry and other land use without threatening these values.
3. There are conflicts of interest over land use, especially between forestry and reindeer husbandry as well as over the effects of an expansion of hydroelectric power, all of which calls for innovative solutions to land use questions in specific areas as well as on a landscape scale.
4. There is an established geographic area which offers the opportunity to work on a landscape level from forestless mountains, via forested mountain slopes to northern taiga forests, agricultural land and rural communities.
5. There are established scientific test areas and studies directly pertinent to central fields within forestry (selection felling systems, high grading, forestry adapted to riparian zones, shelter wood systems and more) and a good relation to the Swedish Agricultural University (SLU) and the University of Umeå.
6. The VMF area is well documented, i.e. there is much data available which makes historic and other analysis possible. There is furthermore a great number of publications and documentation from various experiments.
7. There is an established well functioning collaboration between different parties: The Swedish Forest Agency, companies like SCA, Norrskog and Sveaskog, the local Vilhelmina forest common, The National Property Board, reindeer owners Vilhelmina Northern and Southern same villages to mention some examples.
8. VMF is part of a global network with a continual exchange of experience and knowledge within forestry, which is also the starting point for the development of a North European network of Model Forests.
9. There are good preconditions for co-financing and cooperation for initial financing of enterprises, public administration and research.

10. There is an interest from the media in the further development of land use and regional exploitation in an area that was strongly in focus at the end of the 1980's (the Njakafjäll debate), which was also the object of a doctoral dissertation (Lisberg-Jensen 2002).



Figure 11. Vilhelmina's position in relation to other European locations. (Polcirkeln = The Arctic Circle).

5.2 Suggested organisation and demarcation

In the report published about Vilhelmina Model Forest (Svensson et al. 2004) four steps were indicated to reach the conditions set by IMFN for admission to the network:

- Local partnership. The establishment of a steering group among local interested parties which is able to manage the VMF with the aim to work for sustainable forest management.
- Forum. A forum must be established for the local steering group to convey information and increase the understanding of different demands on forest land, to share knowledge and experience and share resources to develop methods for sustainable forest management.
- Geographic area. To establish a geographic area that can work as a base for full scale experiments, where methods for sustainable landscape use and services can be developed, applied, studied and demonstrated.

- Activity plan. To develop an activity plan that helps describe the development of sustainable forest management taking into consideration land owners' interests, a societal and landscape perspective as well as all forest values.

In a first step, a steering group has been organized. The Forestry Agency in Vilhelmina has coordinated this with land owners and users, local partners within the VMF, authorities and researchers. The interim steering group is made up of the following parties:

Vilhelmina Municipality	The Swedish Forest Agency
Vilhelmina Sámi Villages	The Region of Västerbotten
Vilhelmina Övre Allmänningsskog	Norrskog Forestry
SCA Forestry	Umeå University
The National Property Board	The Nature Conservation Society
The Swedish University of Agricultural Sciences	

The forum required is under establishment. This is done through a network of about 50 people representing different land use interests. The network can be divided into groups depending on the type of question or direction. The important thing is to organize meetings so that the steering group can engage the local parties (owners, land users and other interested parties) in the dialogue and in the operative measures taken towards sustainable forest management.

Vilhelmina municipality has supported the VMF with localities in Vilhelmina church town. The above mentioned forum for partners must evolve gradually. A number of excursions have been organized, among other things about forest management in riparian zones, and more are planned.

The work has been divided between the local steering group and the network, both with representatives from forestry, conservationists, reindeer husbandry, recreational interests and tourism. The steering group has the overall responsibility for the achievement of goals and visions, for instituting strategies and making applications for means from financiers. The network is the larger body where suggestions are made as to which goals should be set up and measures taken to achieve them. This group anchors the project among the local community and is the outward face toward authorities, researchers, etc.

The geographic area is Vilhelmina municipality (879 000 hectares). Educational walking tracks, information boards and demonstration areas have been set up to show different kinds of usage of forests and nature resources. The forest will be used as a think tank and a lecture hall. If necessary other demonstration objects outside of Vilhelmina municipality will be included in the VMF as "satellites". Some efforts within the project will encompass a geographic area including the entire municipality. The size of the area in question will depend on each specific target. For the benefit of reindeer husbandry, its possibilities and limitations will be seen in the light of the entire area used by the two local Sámi villages. Their land use covers an area from the Vilhelmina mountains to the Gulf of Bothnia coast, altogether 2.9 million hectares.

An activity plan is being worked out by the steering group. One of the central objects is to increase participation and establish criteria, indicators and programmes for the VMF as suggested by Svensson et al. (2004). At this time there is a preliminary overall plan, which will be treated in more detail by the local steering group.

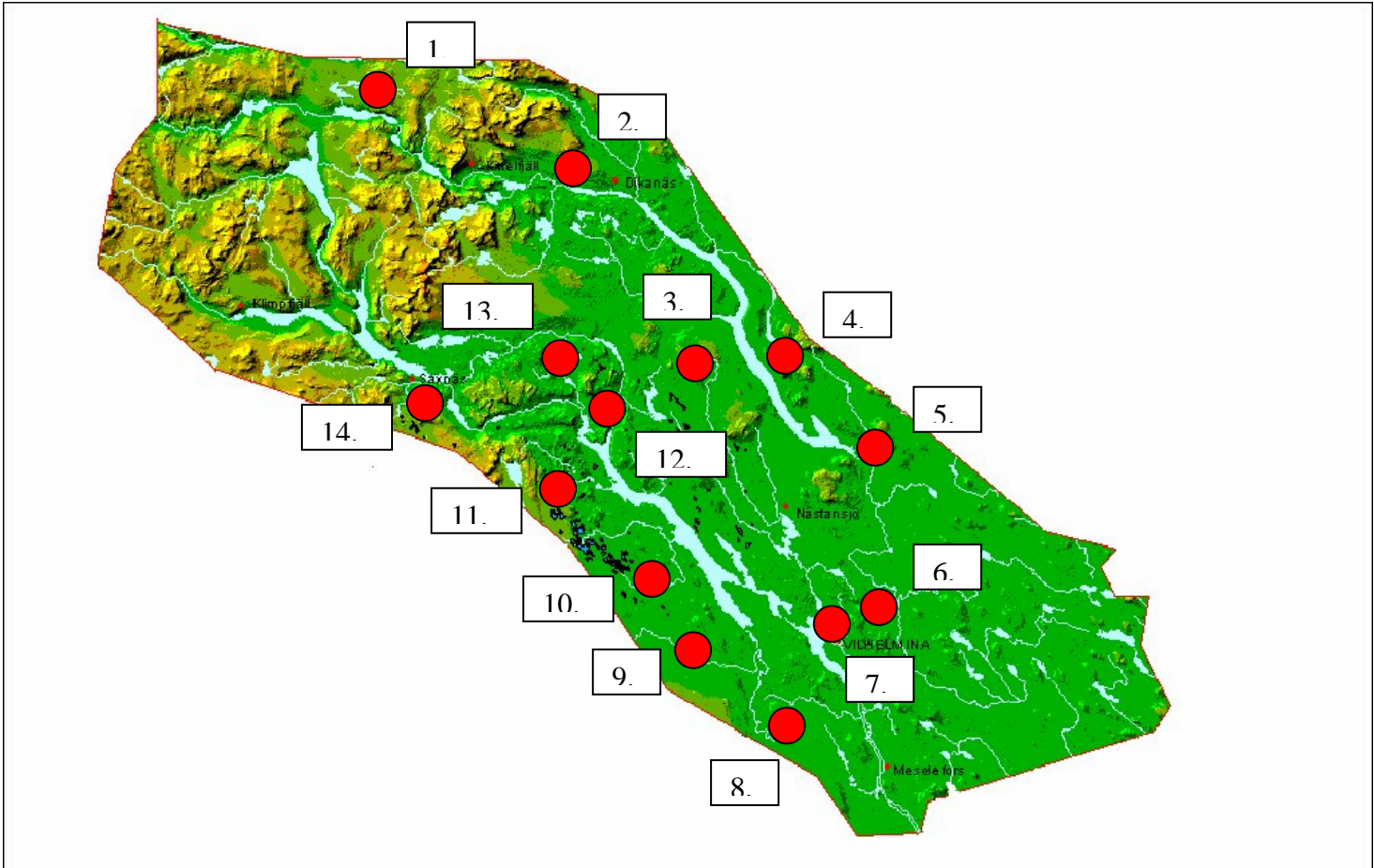


Fig. 12 Map over Vilhelmina Model Forest – Demonstration areas

1. Silisen, Reindeer husbandry – culture track
2. Klitvallen, Selection cuttings in high altitude forest
3. Vojmsjölandet, Virgin pine forest
4. Skikkisjöberget, Different methods for selection cuttings
5. Gråtanån, Culture track
6. Krontjärn, Forestry near populated areas
7. Kyrkberget, Information – tracks for children
8. Statsås, Forest management with controlled burning
9. Laxbäcken, Forest management in riparian zones
10. Andersbäcken, Shelter wood systems
11. Skorne, Landscape planning
12. Stalon, Forest history
13. Njakafjäll, Virgin spruce forest
14. Bielåte, Alternative forest management – culture track

5.3 Suggested activity plan for the Vilhelmina Model Forest

The Model Forest concept, as used by the IMFN and the Canadian Model Forest Network, offers a possibility to establish an arena for the development, administration and study of sustainable forest management and sustainable use of nature resources. The activity plan in a Model Forest is based on six criteria for sustainable forest management, four of which mirror perspectives within natural science and two come from social science perspectives (Svensson et al. 2004).

1. Maintenance of biodiversity.
2. Supporting the vitality and productive capabilities of the forest ecosystem.
3. Safeguarding land and water resources.
4. Awareness of the role of forest ecosystems in the global ecological balance.
5. The societal goods created by forestry.
6. Society's responsibility for sustainability.

All Model Forests within the IMFN apply these six criteria, but form their activities so that national and local prerequisites are in focus.

The preliminary activity plan for VMF includes six development programmes according to the above mentioned six criteria.

1. Nature conservation in a landscape perspective.
2. Forestry that maintains a balance between production targets and ecological targets.
3. Forest management in riparian zones.
4. The effect of climate change on the alpine forest and the near-alpine forest.
5. The combination of forestry and reindeer husbandry.
6. Participation in the planning of the forest landscape.

Program 1. Nature conservation in a landscape perspective

Indicators 1.1 – 1.4, 2.1, 5.2, 6.1 in Svensson et al. (2004)

Maintenance of biological diversity is an overriding aim of the work for the formal protection of forest land within the ecological quality goal "Levande skogar" (Living forests). To fulfil this goal, forestry and other agricultural and natural resource using industries are expected to conduct their activities in such a way that naturally occurring species can continue to exist in healthy populations. This in turn requires that protection can be planned at a landscape level integrated with forestry so that a functional network of representative forest ecosystems can be maintained.



Fig. 13 Virgin spruce forest of high conservation value near Njakafjäll.

The programme is designed with measures to be taken at a landscape level, at the level of ecosystems and the level of some focal species. At the landscape level there are descriptions made of the structure of the landscape and the distribution of nature types and the presence of disturbances, the prevalence and distribution of key biotopes and forest types with high biodiversity and natural gradients of diversity. At the ecosystem level this includes the difference between cultivated forests and virgin forest, the occurrence and distribution of dead wood and other specific structures. At the species level there is a focus on the status and survival of endangered or red listed species.

As a background to this work, an analysis is needed and a follow-up with spatial (GIS) analyses of the functionality of various forest habitats with regard to maintaining healthy populations (Angelstam et al., 2003, Angelstam, Lazdinis, Törnblom, 2004).

The following part studies have been suggested:

1. An overall mapping of forests where clear cutting should be avoided.
2. Specification of different types of forest dynamics and reasons for alternatives to clear cutting, like for instance different forms of continuous cover forestry management regimes.

3. An overall mapping of where forests with a more or less continuous tree cover and the associated values are located.
4. An overall mapping of changes in the distribution of forests with continuous tree cover and the associated values during different historical periods.
5. Landscape planning for different forest habitats with regard to classification, including continuous cover forestry in areas of high conservation value (PF) and maintenance of conservation values (NS).
6. Landscape planning with regard to how the functionality of different kinds of forest habitats is affected by the distribution of formally protected forest and conservation agreements.
7. Learning more about the maintenance of biodiversity by mapping the history of the area and the forestry management related to the prevalence of indicator species in various habitats.

Program 2. Forestry balancing the productive and the environmental targets

See indicators 2.1, 5.2 and 6.2 in Svensson et al. (2004).

On the international scene there is a broad unity that forestry methods should be developed to create forests with a composition of species, a structure, function and dynamics similar to the natural state in a landscape or region. (Svensson and Jeglum, 2001, Angelstam 2003, Angelstam and Kuuvalainen 2004).

Within the VMF several scientific studies have been conducted on demonstration areas with regard to alternative methods of forest management, land use and multiple use, with documentation. This documentation is in itself an important foundation, but there is a need to update and revise these studies, especially with regard to the effect of these forestry methods on the balance between productivity and ecological targets.

In 2004 The Swedish Forest Agency initiated the project “Continuous Tree Cover Forests and Continuous Cover Forestry (kontinuitetsskogar och kontinuitetsskogsbruk)”, among other things to develop and study alternatives to the dominating clearfelling approach in order to achieve political aims for forest management. The knowledge about alternative forest management regimes remains limited in Sweden. There is a great need to assess how alternative methods should be shaped to give acceptable economic return taking into consideration environmental and socio-cultural values (Anon. 2004).



Fig. 14 Forest managed with selection systems near Bielite.

Mapping forest history is of great importance in order to correctly assess the status of the forest today and to identify areas with different levels of disturbance. Such a mapping also offers a foundation to use for planning suitable strategies for maintenance. Historically selection systems have been the prevalent form of forest management within the VMF. Clear cutting has dominated only during the last thirty years. It is therefore possible to make an assessment of how different kinds of logging have affected the natural state of the forest.

Attention should in particular be paid to specific species that are in some way dependent on a continuous tree cover. For VMF the prevalence of epiphytical lichens in relation to historic and present day land use is also of special interest, as well as how forest management can be adapted to maintain a vital level of tree lichens to support the needs of the reindeer industry.

West of the border to near-alpine forest the Swedish Forest Agency is engaged in a so-called in-depth activity plan for the Stöken area, west of Saxnäs directly ad-

jaçant to the Marsfjället nature reserve. The background is that the landowners, Klimpfjäll and Lövberg communities, have asked permission to log and to build a logging road. The Swedish Forest Agency has judged that the area is particularly sensitive to competition from other land use interests and has therefore set forth to make this in-depth plan with support of the Law on Forestry. As this paper is being written, the forest has been mapped and an assessment has been made of the nature values. The question now is to find a balance between the production of timber and the ecological values. When the land owners have had an opportunity to give their views on the plan, other land using parties will also have a say, all of which will be taken into account in the in-depth activity plan for the Stöken area. This process will also be noted under Programme 6 concerning participation in the planning of forest land.

The following studies have been suggested:

1. The maintenance and revision of existing test areas for production and demonstration of selection systems and thinning.
2. The prevalence of epiphytical tree lichens in relation to historical land use and forestry on different scales.
3. Forest management strategies in forest habitats with high natural and landscape values.
4. An analysis of human colonization.
5. A historic analysis of forest fires and species dynamics among trees.
6. Ditching – history, the needs and prerequisites for it.
7. Intensive forestry and fibre plantations – the prerequisites and the need for plants.

Programme 3. Forest management in riparian zones

See indicators 3.1, 3.2 and 6.2 in Svensson et al. (2004).

The transition zones between land and water habitats are rich in species and of great importance for biodiversity as well as for the sports fishing as an industry. Streams and adjacent land zones function as natural migration corridors for plants and animals. Within the VMF five large streams have been mapped as both with regard to the water habitats and the adjacent forests. The analyses of these habitats can help with the work to make better instruction for forest management and effective conservation of biotopes. The long term aim is to build basic knowledge that can help form maintenance programmes that support biodiversity as well as allowing for some forestry production in riparian zones.



Fig. 15 Excursion to the Laxbäcken stream for local parties to the Vilhelmina Model Forest.

The power company Vattenfall has presented plans to redirect water from the Vojmån stream to the Stalon hydroelectric power station. The project has been presented as ecological with only limited negative effects. An estimated 90% of the water from Vojmån will be led through a 17 km tunnel in the ground through a nature reserve and under a water system of high conservational value. The climate change is used as an argument in favour of the redirection – ”more renewable energy is needed and less carbon dioxide emissions”. Through the so-called power certificates the Vojmån redirection project will receive a state subsidy required to make it economically feasible. Another argument is that it creates new jobs locally.

Streaming water has many values and this nature resource is often the object of competing interests. Hydroelectric power is considered one of the cleanest sources of energy and in spring of 2006 the government will present more plans for the expansion of hydroelectric power. On the other hand our ”national rivers” and remaining unexploited streams are extremely valuable for tourism and rural development. An important, expanding sector is adventure tourism linked to the outdoors and sports fishing. Sports fishing alone account for a turnover of about SEK four billion per annum in Sweden. Streaming waters are also important to nature conservation and management of biodiversity. There are many questions to be answered: How can these competing interests be considered? Should hydroelectric power be expanded and what are the strongest motives for that? Have the macroeconomic gains of different kinds of usage of streaming water been properly assessed? Can Sweden offer a ”tourist wilderness” in the future and what is the value of that? What is the significance of new jobs created from this resource?

The following part studies have been suggested:

1. An analysis of the effects on water habitats and biodiversity from historic and present day forestry for the streaming waters in question. The emphasis will be on the Laxbäcken watershed.
2. Landscape planning of forest management classes (without management (NO), with management (NS), reinforced consideration (PF) along streaming water, lakes and wetlands.
3. Commencement of biotope maintenance work at Laxbäcken.
4. Working out instructions for forestry near streaming water.
5. A study of the effects of hydroelectric power exploitation of the Ångermanälven River.

Programme 4. The effects of climate change on forests

See indicators 4.3 in Svensson et al. (2004).

The possible effects of climate change are that the present limit for alpine forest growth moves upwards, that marginal, low-productive land in the near-alpine region under certain circumstances will become more productive and that productive forest land is swamped resulting in a subsequent reduction of productivity. This means that the condition for forestry in the near-alpine forest undergoes a change as well as the functionality of the forest areas set aside for conservation purposes.

Climate change affects the strategic work towards safeguarding biodiversity in the near-alpine forests. The environmental objective "Sustainable Forests" does not include near-alpine forests, with the assumption that forestry has a more extensive effect on the habitat and that biodiversity therefore is not threatened. Furthermore large areas of near-alpine forest have been set aside as nature reserves with free growth. The increased productivity and denser growth may in the long run threaten conservation values that made this a priority.

The following part studies have been suggested:

1. The effects of different climate scenarios on the limit of alpine forest growth and the composition of species.
2. The effects of different climate scenarios on the near-alpine forest growth, the distribution of species and the productivity of this forest.
3. The effects of different climate scenarios on the functionality of the forest areas set aside for conservation purposes.
4. The effects of different climate scenarios on vegetation crucial to reindeer and moose.

Programme 5. The combination of forestry and reindeer husbandry

See indicators 2.1, 5.2 and 6.2 in Svensson et al. (2004).

For the reindeer husbandry it is important to have knowledge of the grazing needs of the reindeer during different seasons. There is already general information about the grazing of reindeer, while there is less quantitative knowledge about how forestry, the age structure of forests etc. affects their use is more limited. A first step towards an overview of the most important grazing areas has been to work out reindeer husbandry plans, one of which is already operable in Vilhelmina Norra sameby (Northern Sámi village) and another under way in Vilhelmina Södra sameby (Southern Sámi village).



Fig. 16. Taxonomic studies of lichens on test areas and the application of "lichen cages" during the work on a reindeer husbandry plan.

New technology being developed within wildlife research has been made operable for reindeer husbandry in Vilhelmina northern Sámi village. Since Nov. 15 2005, 20 reindeer have been carrying collars with GPS and GSM technology, which through web-based maps and mobile telephones have kept reindeer herders updated on a daily basis about the location of the reindeer. With this technology it is also possible to gain fresh and more qualitative knowledge about how the reindeer use the land, which in turn can be related to different forms of forest management. The GPS positions of the reindeer will also help improve the information on

which the Reindeer Management Plan was based. Information about the status of forests comes from forestry databases and existing satellite image classifications, enhanced with field data about the forest and grazing conditions. In the different habitats that have been analyzed an estimate is made of how different forest types rich in lichen are used by reindeer during their winter grazing of ground lichens and late winter-spring grazing of tree lichens. These results increase the knowledge of the grazing potential of land and make it possible for the Sámi village to make better use of the grazing lands. The information can also be used to adapt forest management to the needs of the reindeer husbandry by increasing knowledge about the relation between the needs of the reindeer and certain types of forestry. This knowledge leads to a better dialogue between the reindeer industry and forestry.

The following part studies have been suggested:

1. An evaluation and estimation of the value of the grazing lands identified in the Reindeer Husbandry Plans.
2. An evaluation of how different forestry methods affect the grazing of reindeer.
3. An evaluation of the use of the "GIS for Reindeer Husbandry" programme within the Reindeer Husbandry Plan as a basis for different parties to work together.
4. To adapt existing methods of tree lichen mapping to specific questions pertaining to reindeer husbandry.
5. To optimize the operative advantages of GPS/GSM collars for the Sámi villages.
6. Traditional and local knowledge about the use of forests.

Programme 6. Joint planning of the forest landscape

See indicators 6.1 to 6.4 in Svensson et al. (2004).

The dialogue between stakeholders is important for attaining the operative goals set and crucial to stimulate innovative thinking and joint responsibility. Locally based insights into the use and effects of forestry and other measures applied in the forest landscape increase understanding and concern.

To successfully reach the goal of a balanced use of the landscape conflicts between the parties concerned, groups or individuals must be addressed, not least so that everyone has access to information and a share in the planning process. Through strategic assessment of ecological questions long term goals for sustainable development can be included in planning and decision making processes. This, however, requires that suitable tools for assessment or indicators are agreed upon through interaction between the parties at different levels, public as well as private. There is a great need for the development of methods to handle complex, scientifically based tools for environmental assessment, while maintaining a sense of joint responsibility.



Fig. 17. Lunch in the forest during an excursion on the Vilhelmina Model Forest in the autumn of 2005.

In order to reach the operative goals for the forest there is a need for advice and information to forest land owners and the general public. Within the demonstration areas there is a chance to see practical forest management and use the forest as a lecture room. To get a visual image of the landscape, remote sensing and GIS technology can be used. The results of work conducted within the VMF will be displayed among other places in the localities in Vilhelmina church town.

Moose has a high value within the hunting community. There is a lack of knowledge about the migratory patterns of the moose. There is need for a more active collaboration between the parties within game management to create a more sustainable management of this resource.

The following part studies have been suggested:

1. To create a group for party collaboration and find a working mode for this group.
2. To work on an in-depth activity plan for the Stöken area near lake Kultsjö.
3. To put in order demonstration areas within the VMF including forestry in the vicinity of populated areas and vantage points like those at Trappstegsforsen, Stalonberget and Alsberget.
4. To commence training for forest land owners and the general public through a lecture series based on the six criteria mentioned above.
5. To monitor, document and improve the collaboration between reindeer husbandry and forestry.

6. To monitor, document and strengthen the use of information from "Real time GPS on reindeer" for a dialogue between reindeer husbandry and forestry.
7. To monitor the project "Moose in Mid-Skandia" (Swedish: Älg i Mittskandia).
8. To monitor, document and enhance the use of 3D imagery in the improvement of land user dialogue in the Laxbäcken area.

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In Sweden and other countries work is going on to put conventions and guide-lines on sustainable use into practical actions. This effort demands co-operation between forest owners and other actors in the society. The landscape perspective that is preferred, both as large geographical areas, different values in the landscape and participation by different actors, would be facilitated if there were arenas where people could co-operate with their own prerequisites and interests. This report gives some examples of such arenas.