



norden

Nordic Forest Research
Cooperation Committee - SNS

Project no: SNS-100

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FINAL PROJECT REPORT

Please notice that the size of text sections in the form can be adjusted if needed.

The length of the final report should not exceed 5 pages.

1. Projektittel	AFFORNORD- indlydelsen af beskogning på økosystemer, landskab og regional udvikling i Norden.
2. Title of project	AFFORNORD – the effects of afforestation of ecosystem, landscape of rural development in the Nordic countries.
3. Project leader /coordinator (name, address, telephone, telefax. e- mail)	Gudmundur Halldórsson Icelandic Forest Research Mógilsá, IS-116 Reykjavik Iceland Phone: +354 515 4500 ; Fax: +354 515 4501 gudmundurh@land.is
4. Time schedule	The project started 1 / 1 2006 and ended 31/12 2006
5. Project cost	SNS-grant €12.283 Total project cost: €1.041.526
6. The purpose of the project/main problems/hypotheses addressed	<p>The objective of the AFFORNORD project, is to elucidate the influence of afforestation on the ecosystem, local communities and landscape in different regions of the Nordic countries. This is done by; a) a literature study, b) linking existing Nordic projects in the field and c) common field studies in key areas. The results increase our understanding of which factors control changes in ecosystems, local communities and landscape following afforestation.</p> <p>The grant from SNS was used to publish proceedings from the conference in the TemaNord series and write a report/book in the Nord series where information from the whole project, as well as literature study, is consolidated to give an overview of the effects of afforestation on ecosystems rural development and landscape.</p>

<p>7. Brief description of the research plan and of eventual larger deviations from the plan</p>	<p>The main objective of the AFFORNORD project is to elucidate the influence of afforestation on the ecosystem, local communities and landscape in different regions of the Nordic countries. This will be done through; a) linkage of existing Nordic projects in the field which will be supported b) by common field studies in key areas and c) a literature study. The results will increase our understanding of which factors control changes in ecosystems, local communities and landscape following afforestation and help to identify fields of future research. This information will increase knowledge about Nordic forests, effect of afforestation and provide information to local communities. It is widely recognized that forests must not only provide wood but also several other ecosystem services, such as biodiversity. Therefore, it is necessary to elucidate the effect of afforestation on ecosystem processes and biodiversity and how this affects sustainable development. It is important to recognise the effect of using exotic tree species compared to indigenous species and what might be gained or lost in terms of habitats and biodiversity. Furthermore, as afforestation programs in former treeless areas are foreseen to increase in the near future, it is important to understand the ecosystem changes that will follow and also the effect on rural communities and landscape.</p>
<p>8. Results (max 2 pages)</p>	<p>The AFFORNORD conference on the effects of afforestation on ecosystems, landscape and rural development was held in Reykholt, Icelan 2005. The following Proceedings was published as a Tema Nord book in 2007. The final report, <i>AFFORNORD – effects of afforestation on ecosystems, landscape and rural development</i>, has been prepared with meetings of authors in November 2006, followed by writing and several editorial meetings in 2007. The manuscript is now finished and will be sent for publishing in the Nord series at the end of November 2007. The main conclusion from the project are synthesized in this book. In short, the conclusion are following</p> <ul style="list-style-type: none"> • The effects of afforestation on biodiversity varies depending on which functional groups are studied, afforestation planning and forest management. While the biodiversity of some groups of organisms responds negatively to afforestation (e.g. vegetation), others are positively affected by this process (e.g. fungi). • The effects of afforestation on landscape have been neglected and few research have been done in that field. However, it is obvious that afforestation affects landscape greatly and it is important to consider landscape in afforestation planning. • It is not viable to generalize about overall effect of afforestation on rural development in the Nordic countries, since the effects are case-dependent, determined by differing social and regional concerns.

<p>9. What advantages has been gained by the Nordic collaboration (i.e. by the cooperating partners, use of the project results)</p>	<p>The Nordic Countries represent a wide variety as regarding forests and forest related activity. From Iceland and the Faeroe Islands, with a very low coverage- and thus a low impact on local and regional economy, via Denmark and western Norway, with higher coverage, and various impact/dependencies in local societies/environment/landscape, to Eastern Norway, Sweden and Finland where the coverage is – and has been – high and where forestry is a major contributor to the economy, having a large impact on environment, landscape and societies. This latter region is among the most important producers of forest products in the world, whereas Denmark, Iceland and the Faroe Islands are in the process of increasing afforestation of their land area.</p> <p>The development of afforestation is therefore at different stages in different regions. This gives the opportunity to study this development at different stages, within and between countries, and to contribute with important information for political decision making within countries and communities. This is especially important as this will give regions which are less developed in this context possibility to adapt their afforestation policy as to conform with long term Nordic and international goals in biodiversity, rural development and landscape. At the same time certain subjects within such studies are highly specialized and therefore benefit from broader co-operation. The project meets such needs by creating a network making use of different expertise in different countries/institutes.</p> <p>As forests play a very important role in the economy of the Nordic region it is important for the region to be able to convince the public and the international market that forestry in this region is sustainable. This can only be done through research of the influence of forestry on the biodiversity, on the landscape and on the local communities, such as this project does. At the same time it is important for the Nordic region to mark itself as a leading region in forestry and forest research in the world. By Nordic cooperation our possibilities are very much increased in this context. We believe that combining biological and sociological science, as in this project, is a novel idea that could contribute to the Nordic forest research at international level. Therefore, this project aims at defining a common Nordic standpoint within the sector of environment, agriculture and forestry.</p> <p>Renewable resources, such as forests, are of high importance in the Nordic countries and the populations and authorities of these countries are very concerned that they are used in a sustainable manner. The Nordic countries are also mostly a very sparsely populated region and depopulation of rural areas is a great concern of authorities in the region. We believe that this project will deliver results that concern sustainable management of renewable resources which is an important part of the Nordic identity and community. At the same time it addresses important questions in the rural developmental politics of the region.</p>
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<p>10. Publications and other communication activities (please list scientific reports, more popular reports and other communication activities)</p>	<p>Videnskabelige publikationer fra AFFORNORD</p> <p>Sigurðsson, B.D. & B. Bjarnadóttir. 2004. Beinar mælingar á kolefnisbindingu skógræktarsvæða. Proceedings from Fræðaðing landbúnaðarins 2004: 269-272. (In Icelandic).</p> <p>Sigurðsson, Bjarni D., Brynhildur Bjarnadóttir, Ian B. Strachan & Friðrik Pálmason. 2004. Tilraunaskógurinn í Gunnarsholti II. Vatnið í skóginum (Gunnarsholt Experimental Forest II. Annual water balance and water quality). Skógræktarritið 2004 (1): 51 – 60. (In Icelandic, English summary).</p> <p>Guðmundsdóttir, Gerður & Bjarni D. Sigurðsson. 2005. Kjörhitastig birkis og þriggja annarra algengra trjáteguna á Íslandi (Optimum temperature of mountain birch and three other common tree species in Iceland). Proceedings from Fræðaðing landbúnaðarins 2005: 341-344. (In Icelandic).</p> <p>Guðmundsdóttir, Gerður & Bjarni D. Sigurðsson. 2005. Photosynthetic temperature response of mountain birch (<i>Betula pubescens</i> Ehrh.) in comparison with three other broadleaved tree species in Iceland. Icelandic Agricultural Sciences 18: 43-51.</p> <p>Jónsson, Jón Á., Bjarni D. Sigurðsson, Brynjólfur Sigurjónsson, Guðmundur Halldórsson & Kesara Ananthawat-Jónsson. 2005. Breytingar á botngróðri, skordýra- og fuglalífi við framvindu asparskógar (Successional changes in ground vegetation, insects and avian fauna in a poplar forest). Proceedings from Fræðaðing landbúnaðarins 2005: 408-411. (In Icelandic).</p> <p>Magnússon, Borgþór & Bjarni D. Sigurðsson (2005). Flókakræða fundin í Vatnshornsskógi í Skorradal. Skógræktarritið 2005 (1): 51-55 (In Icelandic).</p> <p>Sigurðsson, Bjarni D., Ásrún Elmarsdóttir & Borgþór Magnússon. 2005. Áhrif skógræktar á sýrustig jarðvegs og gróðurfar (Effect of afforestation on soil pH and ground vegetation). Proceedings from Fræðaðing landbúnaðarins 2005:303-306. (In Icelandic).</p> <p>Sigurðsson, Bjarni D. & Borgþór Magnússon (2005). Skógarsnípa: nýr íslenskur varpugl finnst í furuskógi í Skorradal (Woodcock (<i>Scolopax rusticola</i>) found breeding in Icelandic woodland). Skógræktarritið 2005 (1): 14-17 (In Icelandic, English summary).</p> <p>Sigurðsson, Bjarni D., Borgthor Magnusson, Asrun Elmarsdottir & Brynhildur Bjarnadottir (2005). Biomass and composition of understory vegetation and the forest floor carbon stock across Siberian larch and mountain birch chronosequences in Iceland. Annals of Forest Science 62 (8): (In press).</p> <p>Sigurðsson, Bjarni D., Arnór Snorrason, Bjarki Þór Kjartansson & Brynhildur Bjarnadóttir (2005). Kolefnisbinding með nýskógrækt. Hvar stöndum við og hverjir eru möguleikarnir. Rit Fræðaðings landbúnaðarins 2005: 20-24.</p> <p>Bjarni D. Sigurðsson (2005). Einföld aðferð til að koma aspar- eða víðiskógi í lúpínubreiður (Effects of preculture of Nootka lupin (<i>Lupinus nookatensis</i>) for survival and growth of deciduous tree cuttings). Skógræktarritið (1): 27-35 (In Icelandic, English summary).</p> <p>Sigurðsson, Albert S., Sigurður H. Magnússon, Jóhanna M. Thorlacius, Hreinn Hjartarson, Páll Jónsson, Bjarni D. Sigurðsson, Borgþór Magnússon and Hlynur Óskarsson. Integrated monitoring at Litla-Skard, Iceland. Project overview 1996-2004. Skýrsla Umhverfisstofnunar, UST- 2005: 08, 65 bls.</p> <p>Halldórsson, G., Oddsdóttir, E.S. and Eggertsson, Ó. (eds.)(2007). Proceedings of the AFFORNORD conference: Effects of afforestation on ecosystem, landscape and rural development, 324 pp. .</p> <p>Halldorsson, G., Oddsdottir, E.S. & Sigurdsson, B.D. (2008) AFFORNORD – effects of afforestation on ecosystems, landscape and rural development. Nord Series XXX (in manuscript)</p> <p>Andre publikationer fra AFFORNORD</p> <p>AFFORNORD conference: Effects of afforestation on ecosystem, landscape and rural development. Book of abstracts. 2005 Eds. Edda Sigurdís Oddsdóttir and Ólafur Eggertsson.</p> <p>Arneberg, A. 2005. Skogreisningens effekter på nedbrytning og vegetasjon på Island. MSc opgave. Universitetet for miljø- og biovitenskap, Ås</p> <p>Guðmundur Halldórsson, Edda Sigurdís Oddsdóttir and Karl S. Gunnarsson. 2005: AFFORNORD – Ráðstefna um áhrif nýskógræktar á líffræðilegan fjölbreytileika, landslag og byggðarþróun. In: Fræðaðing landbúnaðarins. Fundarsal Íslenskrar erfðagreiningar og Hótel Sögu. 3.-4. febrúar 2005. (AFFORNORD – Konferense om skogresningens effekter på ekosystem, landskap og regional udvikling. Poster publisert på Landbrugets års konferanse, 2005)</p> <p>Halldórsson, G., Oddsdóttir, E.S., Gunnarsson, K.S. 2004. AFFORNORD - Effects of Afforestation on Ecosystem, Landscape and Rural development. Poster presented at the NECC workshop "Effects of land-use change on the GHG-balance of managed terrestrial ecosystems" at Hallormsstadur, Island in August 11.-12. 2004..</p>
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<p>11. Project summary (about 1/3 page) with main emphasis on results for possible use in the News & Views section of Scandinavian Journal of Forest Research</p>	<p>The objective of the AFFORNORD project was to elucidate the influence of afforestation on the ecosystem, local communities and landscape in different regions of the Nordic countries. This was done by; a) a literature study, b) linking existing Nordic projects in the field and c) common field studies in key areas. The results increased our understanding of which factors control changes in ecosystems, local communities and landscape following afforestation.</p> <p>One of the main products of the AFFORNORD project was an international conference on the effects of afforestation on ecosystems, landscape and rural development, held in Iceland 2005. The proceedings from that conference have been published in the Tema Nord series.</p> <p>The final product of the project will be a book published in the Nord series in 2008. The main conclusion from the project are synthesized in this book. In short, the conclusion are following</p> <ul style="list-style-type: none"> • The effects of afforestation on biodiversity varies depending on which functional groups are studied, afforestation planning and forest management. While the biodiversity of some groups of organisms responds negatively to afforestation (e.g. vegetation), others are positively affected by this process (e.g. fungi). • The effects of afforestation on landscape have been neglected and few research have been done in that field. However, it is obvious that afforestation affects landscape greatly and it is important to consider landscape in afforestation planning. • It is not viable to generalize about overall effect of afforestation on rural development in the Nordic countries, since the effects are case-dependent, determined by differing social and regional concerns. <p>This project has shown that inter-disciplinary studies on the effects of afforestation are necessary. While afforestation is important for rural development, provision of renewable resources and for ecosystem services (i.e. carbon sequestration), it is also important to consider the effects on biodiversity and landscape during planning and forest management. Even though the AFFORNORD project has elucidated some of the pros and cons of afforestation, further research in the field is needed.</p>
<p>12. Date and signature</p>	<p>Date: _____ Signature of project leader/coordinator _____</p>

