

5th Annual Report (2009)

Centre of Advanced Research on Environmental Services (CAR-ES)



People active in CAR-ES 2009 (core group in italics)

Denmark Forest & Landscape Denmark	Sweden Skogforsk	Iceland Icelandic Forest Research Agric. Univ. of Iceland
<ul style="list-style-type: none"> - <i>Per Gundersen</i> (co-ordinator) - <i>Karin Hansen</i> (secretary) - Jesper Riis Christiansen - Morten Ingerslev - Inge Stupak Møller 	<ul style="list-style-type: none"> - <i>Jan-Olav Weslien</i> - <i>Eva Ring</i> - <i>Lars Högbom</i> - Staffan Jacobson - Ulf Sikström 	<ul style="list-style-type: none"> - <i>Bjarni D. Sigurdsson</i> - Brynhildur Bjarnadóttir - Jón Ágúst Jónsson - Edda S. Oddsdóttir - Helena Marta Stefánsdóttir - Gintare Medelyte
Norway Skog og Landskab	Finland METLA	Latvia and Lithuania Silava Lithuanian For. Res. Inst.
<ul style="list-style-type: none"> - <i>Magne Sætersdal</i> - Dan Aamlid - Kjersti Holt Hanssen - Nicholas Clarke 	<ul style="list-style-type: none"> - <i>Leena Finér</i> - <i>Ari Laurén</i> - Hannu Ilvesniemi - Jukka Laine - Anna Tolvanen - <i>Harri Koivusalo</i> - Heljä-Sisko Helmisaari - Sakari Sarkkola - Riitta Väänänen - Sirpa Piirainen - Marjo Palviainen 	<ul style="list-style-type: none"> - <i>Andis Lazdins</i> - <i>Dagnija Lazdina</i> - Aigars Indriksons - Andis Bardulis - <i>Jurate Aleinikoviene</i> - Kestutis Armolaitis - Iveta Varangiryte

Objectives (summary from application)

In this Nordic centre, Environmental Services (ES) include i) C-sequestration, ii) water protection and iii) biodiversity.

With the general objective to strengthen Nordic collaboration and research innovation the specific objectives of CAR-ES are:

- To strengthen the knowledge base for counting and optimising environmental services in sustainable forest management (SFM).
- To quantify the environmental impact of different management strategies and practices in operational ways, that can support decision-making.
- To improve the knowledge and visibility of the environmental services provided by forests in the public as well as among forest owners and managers.

The ambition is to integrate and synthesise the knowledge base (conceptually, qualitatively and quantitatively) on environmental services to the level needed for developing a decision support system (DSS) for SFM. This knowledge base for a DSS may then be implemented by the partners in their internet based dissemination platforms that may target forest owners, decision-makers as well as the general public.

It is not the aim to perform detailed research within each of these three vast research topics. The aim is to focus on the interactions and the major gaps in knowledge from a *holistic view* where information can be integrated across the topics.

Direct operational aims

- Coordination of Nordic research in the area; eliminate potential overlap and promote effective use of Nordic R&D resources.
- Synergy among the three environmental services in research as well as in practice

Status and results for 2009

The following co-operation products have been brought about during 2009:

- **An international scientific conference** on "*Adapting Forest Management to Maintain the Environmental Services: Carbon Sequestration, Biodiversity and Water*" has been planned in detail and was held 21-24 September 2009 in Koli, Finland. The web sites for this conference can be found at <http://www.metla.fi/tapahtumat/2009/koli/index.htm> where even all talks can be downloaded.
- During the Koli conference core members of the CAR-ES gave 4 oral presentations and presented 6 posters.
- A special issue of *Silva Fennica* will be published in 2010 based on 10 papers offered by the participants of the Koli conference. The papers are now under review process.
- **A literature review (desk study)** on "*Environmental Services Provided from Riparian Forests in the Nordic Countries*" which include riparian management and buffer zones has been finalised and is accepted at *Ambio*. This product is a 100% CAR-ES product based on Nordic knowledge and data that would never have been gathered without the CAR-ES funding.
- **A literature review (desk study)**. Cooperation between Skogforsk, Sweden and Forest & Landscape Denmark on a peer-review paper (Hansen, K., Ring, E., Stupak, I. & Raulund-Rasmussen, K. (2010). The impact of forest management on soil quality. *Annals of Forest Science*, in preparation) has been ongoing during 2009, where Karin Hansen has visited Eva Ring at Skogforsk. The paper is a result of a co-operation between the CAR-ES and the EU EFORWOOD project. The co-operation will continue during 2010. A second paper on 'Water quality' is under preparation and will be subject for a similar cooperation.

- **An open seminar** was held 2-5 June 2009, Akureyri, Iceland on '*Environmental Services of forests and terrestrial/aquatic interactions*'. Seventeen scientists attended from 6 countries. 6 hours of presentations were given. At this meeting, CAR-ES was devoted to discuss the current hot issues in each country; new projects; new publications; conference in Koli; Ambio publication; future cooperation in CAR-ES.
- **A meta-database** on nitrate, phosphate and DOC leaching as a result of different forest management operations has been prepared in order to know the state of the overall amount of available data in the Nordic and Baltic countries. It is needed to know the actual state in order to predict CC effects in the future. Future plans for further CAR-ES on climate change need this overview.
- **Web-page** (www.nordicforestry-cares.org) maintained.

Project seminars and conferences held during 2009

June 2-5, 2009, Akureyri, Iceland

Open seminar on '*Environmental Services of forests and terrestrial/aquatic interactions*'

- 17 scientists from 6 countries participated
- 6 hours of presentations divided into two sessions: I) Forest and Water, and II) Other Environmental Services.
- Field visit and discussion of the ForStream project that was funded in relation to CAR-ES.
- In connection to this event we had a business meeting in CAR-ES
- Scrutinising the draft on Forests by the Water, decisions made for finalisation of paper to Ambio.
- Planning of the international workshop on ES in Koli, Finland (see next event). Preparations of our common contributions to the conference.
- Discussion of future cooperation, new CAR?
- SNS evaluation for CAR-ES
- Information exchange, National Research Agendas, new project started etc.
- Common application(s) in our area (EU)
- Update from secretariat, reporting and budget.
- CAR Business meeting



September 21-24, 2009, Koli, Finland

International scientific conference arranged by the CAR-ES core group with the title: "Adapting Forest Management to Maintain the Environmental Services: Carbon Sequestration, Biodiversity and Water". See: <http://www.metla.fi/tapahtumat/2009/koli/index.htm>

- 55 experts and scientists participated
- 20 scientific oral presentations were given
- 28 poster presentations were given
- An excursion was prepared on 'How forest management in Finland provides environmental services in practice'.
- In connection to this event we had a business meeting in CAR-ES

3 Scype-meetings held in 2009 to settle details of the Koli conference and to discuss other business and publications.

Main problems encountered

The co-operation has run smoothly. Enthusiasm seems larger than time and funds allow.

Future activities

Two main events are planned:

A) *Ordinary meeting in Riga, Latvia 16-18 March 2010*, main issue on the agenda:

- **An open seminar** "Environmental impacts of increased Bioenergy use"
- Field visit and discussion of bioenergy issues in relation to CAR-ES.
- Interactions with OSCAR
- Discussion of future cooperation in a new CAR? Preparations of a proposal for the future CAR-ES, 2011-
- Information exchange, National Research Agendas, new project started etc.

B) *A closing meeting in the autumn 2010 in southern Sweden.*

Publications 2010

The full accumulated list of publications is attached (Annex 1).