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Nordic Forest Research
Co-operation Committee (SNS)

Send the report to SNS-secretary Mimmi Blomquist (SNS@slu.se)

ANNUAL STATUS REPORT for CAR

YEAR:

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 3 pages. **Supplementary information can be attached**

1. CAR titel	Centre of Advanced Research on Environmental Services from Nordic Forest Ecosystems (CAR-ES)
2. CAR coordinator (name, address, telephone, e-mail)	Raija Laiho Natural Resources Institute Finland Box 2 (Latokartanonkaari 9), FI-00791 Helsinki, Finland Phone: +358 29 532 2078 E-mail raija.laiho@luke.fi
3. Duration	1.1.2016-31.12.2020
4. CAR status	<p>The CAR-ES team has been very active and the CAR develops largely according to the plans. A specific work plan for 2016-2017 was outlined in the kick-off meeting (Appendix 1). Much of the work is already on-going among the different subgroups responsible for the different activities as described in the full work plan. However, we have also realized that the working time and capacity for networking are somewhat more limited than our enthusiasm, and some activities are in practice moving towards a slightly later onset than outlined in Appendix 2. This means that work on Management on sensitive soils (VA2 A) is currently only on-going on a national basis, and will be included as a workshop topic after the first 2 years, and there is also no temporal space in practice for the modelling workshop (VA3, Susi application) during the first 2 years but this will be included during later years.</p> <p>CAR-ES is integral in promoting collaboration and synthesizing information at the Nordic-Baltic scale. This is evidenced by our communications that include a large share of joint papers in addition to national work that contributes to the network activities. Also research methodologies are constantly reviewed.</p>

5. Activities during the reporting year

Kick-off meeting of the new 5-year period was organized in Riga, Latvia, May 18-19, back-to-back with the kick-off of the spin-off project SNS-120, *Anthropogenic greenhouse gas emissions from organic forest soils: improved inventories and implications for sustainable management*, May 19-20. CAR-ES specific working plan for 2016-2017 was accepted, and the current status of knowledge concerning greenhouse gas emissions from organic forest soils was reviewed through 11 presentations. 40 participants. Meeting outline is presented in Appendix 2. The meeting also launched the integrative work on greenhouse gas emissions from organic forest soils, which will be a major activity during 2016-2018.

Extended Management Committee had five Skype meetings and kept regular contact with e-mail.

CAR-ES participated in organizing the international workshop *Landscape management and design for food, bioenergy and the bioeconomy: methodology and governance aspects* in Göteborg, Sweden, March 15-16 (main organizer Chalmers), where we presented CAR-ES, in addition to regular presentations by group members. 50 participants.

Workshop on bioenergy, jointly with the SNS/NKJ-funded network Effects of bioenergy production from forests and agriculture on ecosystem services in Nordic and Baltic landscapes (coordinator Nicholas Clarke) was organized at Jeløy, Norway, April 4-5. 20 participants, including several involved in CAR-ES.

Workshop on Forestry and water, jointly with the SNS-funded Nordic/Baltic network on Forests, Forestry and Water Issues (coordinator Lars Högbom) was organized


CAR-ES members were integral in organizing the international scientific conference Environment and sustainable forest management in the Baltics – problems and solutions, in Daugavpils, Latvia, Dec. 8-9, even though CAR-ES was not formally listed as coorganizer (an aspect that we will pay more attention to in the future). Presentations by CAR-ES members from Latvia, Sweden and Finland.

CAR-ES members participated in the *SNS and NKJ Matchmaking Day* in Vantaa, Finland, September 15.

CAR-ES members were active in several networks that bring synergies to the work of the CAR, e.g., EU Cost actions BioLink and ClimMani,.

CAR-ES members were active on a number of national and collaborative projects, e.g. the Interreg project WAMBAF, an example of the work on water issues, and the project ForHot, which is a good example of joint work on climate change impacts on soil processes affecting C sequestration and soil quality. The setup of ForHot was published in Sigurdsson et al. (2016) Geothermal ecosystems as natural climate change experiments: the ForHot research site in Iceland as a case study. *Icelandic Agricultural Sciences* 29: 53-71 (full reference in Appendix 3). Several blogs and news items have been prepared to publicize the work in these projects in national languages. Integrative papers will follow during the funding period.

Preparations were started for the next annual workshop and business meeting that will be organized in Tartu, Estonia, with the main focus on soil functional diversity. This will also be a topic for a joint Policy Brief during 2017 and a project proposal.

<p>6. Results achieved during the reporting year</p>	<p>Since this extensive network has multiple on-going activities, we are not able to list specific results. Examples with references are given. The publications mentioned are listed in Appendix 3.</p> <p>The main topics in CAR-ES are C sequestration, functional biodiversity, water quality and soil quality. Concerning soil C sequestration, we examined, e.g., the role of roots: <i>Callesen et al. (2016) Carbon storage and nutrient mobilization from soil minerals by deep roots and rhizospheres. Forest Ecology and Management 359: 322-331</i> and tree species diversity: <i>Dawud et al. (2016) Is tree species diversity or species identity the most important driver of soil carbon stocks, C/N ratio and pH? Ecosystems 19: 645-660</i></p> <p>Concerning functional biodiversity, CAR-ES members contributed to an assessment of earthworm abundance: <i>De Wandeler et al. (2016) Drivers of earthworm incidence and abundance across European forests. Soil Biology and Biochemistry 99: 167-178</i> and a major effort on integration in the Nordic-Baltic region was planned to be launched in 2017.</p> <p>Concerning water quality, several studies reached the reporting stage, e.g.: <i>Tuukkanen et al. (2016) Erosion mechanisms and sediment sources in a peatland forest after ditch cleaning. Earth Surface Processes and Landforms 41: 1299-1311.</i></p> <p>Concerning soil quality, collaborative work was done on Norwegian soils: <i>Strand et al. (2016) Carbon and nitrogen stocks in Norwegian forest soils - the importance of soil formation, climate, and vegetation type for organic matter accumulation. Can. J. For. Res. 46: 1459-1473.</i></p> <p>The individual studies reported form the portfolio of experiments that we strive to coordinate and integrate for mutual benefit, based on resources from national or international sources, as described in the overall work plan. Of the integrative work, one major effort that was accomplished in 2016 was the work on <i>protection zones for forest surface waters in the Nordic-Baltic region</i> that was submitted for peer-review by E. Ring, J. Johansson, C. Sandström, B. Bjarnadóttir, L. Finér, Z. Lībiete, E. Lode, I. Stupak and M. Sætersdal. This will be publicized through several media when accepted.</p> <p>One specific result also worth mentioning separately is the video Spårlös, produced by Swedish CAR-ES members at Skogforsk, which deals with the relationship between forests and water, and functions as educational material for forest entrepreneurs and machine operators: https://youtu.be/Vw634g2Gxj0 An English version will be finished in early 2017. Versions in other network languages are planned as well.</p>
<p>7. Publishing and communication</p>	<p>Please see Appendix 3.</p>
<p>10. Short economic report (overview) of the reporting year</p>	<p>About 2/3 of funding was used for salaries and 1/3 for travel. Overall, the share of SNS funding of the CAR functions was 28%, and of all costs involved 3%.</p>
<p>11. Date and signature</p>	<p>Date: 28/2/2017</p> <p>Signature of CAR coordinator: </p>

