

SkógVatn - ForStreams

6. general meeting 21. of November 2008

Attending: Bjarni Diðrik Sigurðsson (chair), Helena Marta Stefánsdóttir (secretary), Jón S. Ólafsson, Gísli Már Gíslason, Edda Oddsdóttir, Hlynur Óskarsson, Gintare Medelyte, Berglind Orradóttir, Sigurður Guðjónsson, Guðmundur Halldórsson, Hreinn Óskarsson.

Excused:

Brynhildur Bjarnadóttir, Franklín Georgsson and Nikolai Friberg

Missing:

Freysteinn Sigurðsson

The meeting started 10:01

Agenda:

1. Open;
2. Minutes of last meeting read and formally accepted with minor changes and comments
3. Main happenings in 2008
4. Other Issues
5. Mini-conference
6. Still left to do – who is going to do it?

2. Minutes of last meeting reviewed and accepted:

The minutes were accepted.

3. Main new happenings in 2008

Terrestrial:

Mapping of catchments in S and E Iceland (Robert and Bjarni)

Primary production and leaf fall (Edda and Brynhildur)

Install groundwater tubes + water quality samples (Guðmundur)

Aquatic:

Gut contents in fish in S-Iceland (Julia/Gísli Már)

Sediment transport in the streams? (Bedload measurements; Jón S.)

Transport and decomposition of organic matter in the streams (Helena)

4. Other Issues

- i. **CAR-ES meeting in Iceland in June 2009** – Bjarni/Brynhildur will host it sometime during 1.-6. June 2009. 10-15 foreign ecologists who are specialized on forest ecology and water, biodiversity and carbon issues. Linking together ecological issues of water and land, focussing on forests. We have been asked to make ForStreams one of the main Icelandic contributions at this meeting... The dates for the meeting were accepted by all.

- ii. **ForStreams publication database.** Remember to send Bjarni info about all publications for the ForStreams database (i.e. articles, chapters, reports, newspaper articles, interviews in radio, etc where ForStreams (SkógVatn) is mentioned. Very important for the project – both that all participants help in communicating info about the project AND that they send info about such communications to the project manager, so they can be used in status reports to our funding bodies!!
- iii. **COST ForMan.** Jón, Gísli, Edda and Nikolai attended a meeting in Wiena. Writing meeting for springer-book that they are publishing. Don't know how much ForStreams comes in this book. Next meeting in Athens in 11.-14. May 2009. International conference later. Would be good for students to attend future meeting(s)/conference when they can communicate their results.

Possibilities for more short-term-scientific-missions funded by COST. Helena still haven't got the money from the EU because of her STSM visit to Scotland. Jón will check with the COST ForMan coordinator why.
- iv. **ClimaFor application to FP7.** We did not get the EU-ClimaFor funding, the application came second in the final EU selection of projects. There were a number of planned future ForStreams activities linked to this application, mostly which had to do with further research on water budgets in E Iceland. If we would have gotten the funds we planned to start direct measurements of evapotranspiration by eddy covariance (Brynhildur), precipitation, stream runoff and studies on soil water movements by run-off plots (Berglind), etc.
- v. **IceClimate application to RANNIS.** Most of the participants are involved in IceClimate application to form a Centre of Excellence and a Graduate School on Climate Change research, even if it is not directly linked to ForStreams. Still waiting for the outcome – expected to be notified in January.
- vi. **OR.** Some participants warned that OR is having financial challenging times next year, and urged Bjarni to take contact with our contact person at OR about the planned funding. It would be a catastrophe if the ForStreams was cut in its final year. Bjarni promised to do so as soon as possible.

5. Mini-Conference of the first results from the ForStreams project

Mapping of catchments and vegetation communities in S and E Iceland. Bjarni & Robert. Bjarni showed how all catchments were mapped in spring 2008 and how we now have a GIS database on area, landscape, vegetation classes and stream length of each catchment which is being studied within ForStreams.

Decomposition of birch litter in different catchment type (habitats). Helena Marta. Helena showed the first results from the litterbag study in Eastern Iceland, focusing only on how birch leaves decompose during the first 6 weeks after having being transported into the stream. There was highly significant unexpected difference between litter bags that only allowed bacteria/fungi to decompose litter and litter bags designed to also allow

invertebrate fauna to contribute to the decomposition. Apparently allowing the invertebrates access slowed down the decomposition. Much discussion arose if this was a true biological response or if it could somehow possibly be caused by the methodology used. The central question asked by Helena; if different catchment types had different decomposition activity, could not be conclusively answered by her first results (first out of four uptakes). But both litter-bag types showed slower decomposition of birch leaves in streams from treeless catchments, compared to streams in birch or conifer forest catchments (but $P=0.18$). Further studies will probably give clear answers to this question.

Invertebrate communities in different streams in S and E Iceland. Gintare.

Gintare presented her first results on seasonal variation in invertebrate communities in the streams in eastern Iceland. She showed how the population density was at minimum in the spring/early summer but at maximum in autumn/early winter. She also showed that neither population density nor the community structure were radically different between the non-forested and forested streams in eastern Iceland; at least when looking at the main genera present. This view might change when she has identified the invertebrates to species level. In southern Iceland Gintare has separated one sampling time; the results show: a) more diversity than in eastern Iceland; b) more pronounced difference between both diversity and population density between eroded treeless catchments and birch forest catchments. Further results from Gintare will be very interesting. Discussion how long she should take new samples in 2009. At least one late winter sampling and maybe a spring sampling. Also discussion if she should separate all samples from S-Iceland.

Primary production and litter fall. Edda.

Edda presented the status of these measurements in E-Iceland. She also said that further data-analysis will await the time that she and Brynhildur have defended their PhD – but other participants can get access to the data and analyze it themselves.

Water discharge and Terrestrial-Aquatic interaction (suction cups). Berglind.

Berglind explained how this part was planned to be part of Karólína's PhD project, and that we had to decide soon if and how it should be done in 2009, now when Karólína has quit her project.

Water quality. Guðmundur.

Guðmundur reviewed how samples have been taken and analysed both from streams in S and E Iceland and from ground water tubes in S-Iceland. He did not show data at this time, but concluded that enough samples had been analyzed from streams and that the samples from ground water were too contaminated by stagnant water and a microbiological layer that formed at the ground-water surface to be usable. He suggested that this activity should be stopped.

Difference in conductivity, pH and water temperature in S and E Iceland. Bjarni.

Bjarni presented these measurements that have now been made in all streams nine times since the beginning of the project in autumn 2007. Conductivity and pH both in E and S Iceland is negatively correlated to vegetation cover (productivity) in the catchments; this

negative relationship with conductivity came as a surprise – but Bjarni has found some similar results from Alaska. There it seems that erosion of minerals from open soils can affect conductivity as much as leaching of organic materials into water bodies. Is this the case in the ForStreams study?

Bjarni also showed that in S-Iceland the difference between individual streams is much larger than both seasonal variation or differences between catchment types. This may imply that the size of the catchments is too small to effectively show how the terrestrial ecosystem of the catchment affects the aquatic ecosystem. Therefore it may be asked if we should invest as much in chemical analyzes, etc as in E-Iceland where there is a clear link between the ecosystems. Hlynur pointed out that being able to show the contrast between our “young” and “old” geological areas may be the most interesting results from the ForStreams project in international journals! Therefore we should not skip expensive measurements, even if it is questionable if there will be much difference between catchment types. This was quite much discussed without reaching a general conclusion; it was emphasized by both Gísli Már and Hlynur that we should not decrease chemical analyzes just because that we don't expect strong differences between catchment types; the difference in response between S and E Iceland may be just as interesting – but we can't prove that if we don't make the analyzes!

Gut contents of fish in S- Iceland. Gísli Már, Julia Broska.

Gísli promises to give a talk about this part of the study at the next general ForStreams meeting.

Studies on fish. Sigurður G.

Sigurður reported the results of electric fishing in both S and E Iceland. Only three streams in each study area had fish. This is not unexpected due to small size of the streams chosen for the study. We have to make an additional study at a larger spatial scale if we want to include vegetation and density/productivity of fish. Sigurður has been looking for suitable locations for such study. One possibility would be to use the Sandá-catchment in Þjórsárdalur. There, southern part of the catchment runs through coniferous plantations and other densely vegetated areas, while the other more northern part (Sandá) comes from eroded deserts. This area mainly contains brown trout and salmon (more vegetated areas). If we would divide the catchment into some sub-regions, it could be used for a small paired study, where fish density and species composition could be linked to water chemistry and vegetation cover.

Jón S. stressed that even if this was done, it was necessary to finalize measurements of fish density (and gut contents?) within the ForStreams streams that contain trout. That information is needed to explain possible differences in community structure between individual streams.

The participants agreed that Siggi's suggestion to make an additional study at Sandá was a good idea – but there was also still some work to be done in Eastern Iceland.

Sigurður also gave a report on the meeting:

*Boðskapur kom frá Bjarna Dé,
bæðu um pöddur, vatn og skóg.
Bráðum veit ég allt um birkitré,
bölvað timbur, nú er komið nóg.*

6. Things left to do – who will do them?

Student graduations. Gintare is planning to finish her thesis at new year 2008/2009 and to graduate in February 2010 but Helena is planning to graduate in May 2009.

Analyses of discharge and water-level data. Berglind and Gísli are going to do that. Berglind will not have time to finalize the analysis (key for discharge) until in the spring of 2009.

Measurements of suspended solids (grugg) and FPOM and to prepare samples for chemical analyses. Jón S.

Veiðimálastofnun is gogin to make these measurements during hte next weeks.

Measurements of chlorophyll contents on stones. Jón S.

Samples were taken in spring, summer and autumn. These measurements will be done by Veiðimálastofnun in the next weeks. How these measurements are converted to amounts per m² or m stream needs to be worked out. This is a very rough estimate of primer productivity in the streams that can be compared to terrestrial productivity that Edda/Brynhildur will supply.

Suction cups. Berglind.

Additional equipment (to Berglind's equipment) has been bought to install in all catchments. These measurements were planned within Karólína's PhD project and now it is not clear if they will be made. This needs to be decided before next spring and funds need to be secured to analyze the samples. Awaits next meeting.

Karólína's PhD project. Jón S.

Karólína was supposed to start her project on July 1st, and was about to get accepted as a PhD student at Queen Mary – Univ of London. Guy Woodward and Jón S were going to be her supervisors. Her project was an extension to the ForStreams project, mainly adding two components that further studied the terrestrial:aquatic interaction: a) suction cups collecting soil water in the interaction zone, b) to use stable isotopes to study the origin of stomach contents of invertebrates and fish. But she decided not to continue with her studies, and we still have 2,5 millions ISK for 2008 and 1 million for 2010 in funding for this study. What to do – now when the study has been so much delayed and we don't have enough money to advertise for fully funded PhD? This has not been solved. Three alternatives: a) to find a post-doc who can do focussed study during shorter time (that could then be funded by available funds); b) to get a M.Sc. student to work on these

issue(s) in 2009 and 2010 on part-time salary. If neither a or b can be realized before new year we will probably have to return the funding to Umhverfissjóður Landsvirkjunar.

Next general meeting: Friday the 13th of March, 2009.

- ⇒ To finalize the project plan for the final year.
- ⇒ Also to have a mini-conference where participants will report the newest results of different sub-projects.

Meeting closed 15:00