Centre for Environmental and Climate science
ClimBEco graduate research school

Lund University
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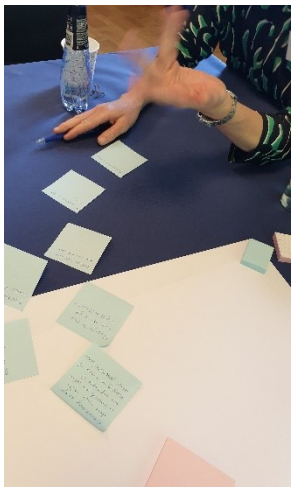
# CEC/ClimBEco alumni celebration summary

11-12 May 2023, AF-borgen, Lund



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# Introduction

Over the past 15 years, the research education at the Centre for Environmental and Climate Science (CEC) has had 40 PhD students who have successfully defended their thesis and currently has 19 PhD students who are enrolled. Over the years, these PhD students have covered a range of scientific topics. From the effects of farming practices on pollinators, estrogen receptors in freshwater fish, modelling of new particle formation in the atmospheric boundary layer to knowledge politics of the IPCC after Copenhagen. In its core, the research education is interdisciplinary and a majority of the alumni and current PhD students have had other affiliations than CEC. This creates its own set of challenges, but it also creates opportunities to challenge set disciplines and to think outside of the box.

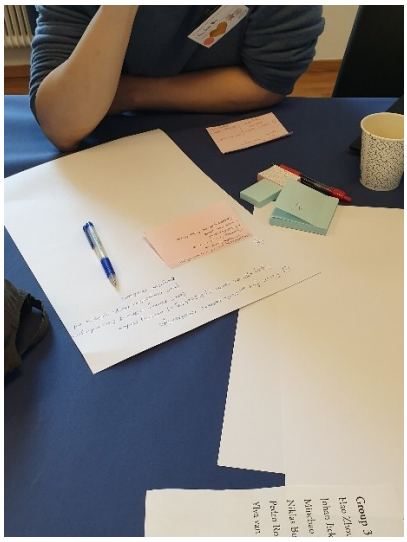
ClimBEco graduate research school was initiated in 2010 and is a two-year program for PhD students interested in the areas of biodiversity, ecosystem services and climate. It exists within the research environments of the Strategic Research Areas (SRAs) BECC and MERGE and is hosted by CEC. The graduate school's vision is to provide PhD students with new perspectives and awareness of other disciplines and methods, networking opportunities, up-to-date courses and opportunities for personal and career development. ClimBEco has nearly 200 alumni and around 30 PhD students are active today. The graduate school collaborates closely with the University of Gothenburg, the Bolin Centre for Climate Research at Stockholm University, and is establishing new collaborations both at other faculties in Lund and internationally.

The CEC/ClimBEco alumni event which took place 11-12$^{th}$ of May was a celebration of all the accomplishments that the PhD students who have taken part or actively take part have achieved. And it was an opportunity for both alumni and PhD students to network both with old colleagues and providing new contacts across disciplines and lines of work.

This summary gives a general overview of the thoughts and ideas that were shared during the alumni event in the separate organized sessions on the first day. The purpose is to give a general overview of the knowledge, ideas and suggestions that were presented during the event to be used as inspiration in whatever line of work you might hold. The key points presented are the views of the participants on the event and the individual knowledge they presented at the different sessions. No further analysis of the points presented has been done to not misunderstand any of the suggested viewpoints.

# Workshop sessions

During day one, there was a workshop session where participants got the opportunity to attend one of three organized workshops which had separate themes. All workshops had three presenters who presented a topic related to the theme, followed by a round-the-table discussion of the overall topic. Here follows a summary of the key points presented by the participants at the different workshops.



## Session 1: How do monocultural practices impact biodiversity and what can be done about it?

The landscape in much of the world has been altered dramatically due to intensified agricultural and forestry practices. Intensification, although allowing for more food and fiber production, has led to a loss in complex landscape structures and low crop and plant diversity. Can intensification of both agricultural and forestry practices be done in a more sustainable and just way?

The three presenters gave examples covering both organic farming practices from a scientific and practical perspective as well as biogeochemical drivers of postfire community assembly. There were discussions on both the drawbacks on biodiversity when using monocultures and possible solutions for improving biodiversity and ecosystem services and that there is still time to make changes. But there needs to be more communication and public awareness to make it happen.

**Table 1. The key points of advantages, disadvantages and possible solutions on monocultural practices and their impact on biodiversity that were produced by the participants at the workshop, categorized into themes.**

| Advantage/possibility | Disadvantage/threat | Possible solutions |
|---|---|---|
| **Agroforestry** | **General** | **General** |
| Agroforestry over monocultural agriculture - Can increase biodiversity, make your soil carbon rich and fertile, also more climate adaptive | Changes move slowly | Resilience estimation |
| **Biodiversity** | Simplification is a threat | Decision support tools |
| Find out how much dead wood in production forest support biodiverse habitats for insects and birds | Recovery of vegetation – how much and how long? | More collaboration, communication, let researchers have more practical farming experience? |
| There is still time to save biodiversity | **Agroforestry** | Be aware of potential solutions and apply to the right system |
| Even though forests in the tropics loose biodiversity, they are not comparable to monocultures | Not the conventional practice, need lot of public awareness, research to make it happen | **Agroforestry** |
| Increased biodiversity leads to functional diversity and better ability to cope with climate extremes | Forest fire – climate extreme relationship, forest recovery in terms of time and magnitude | More research and more public awareness |
| Increased biodiversity increases the carbon capture in soils | Forest composition change, implication of ecosystem resilience | **Monocultures** |
| Reduce impact of pest invasion/infection | **Biodiversity** | Methods in ecophysiology are applicable to studies in monocultures |
| Increase drought resistance, reduce fire spread | Monocultures negative for biodiversity and promotion of ecosystem services | Holistic farm management |
| Recreational value | Lowered resources available for natural enemies lead to less abundance and less pest control | Cover crops, minimal tillage, crop diversity |
| **Monocultures** | Promote sustainable services while keeping high yields | |
| Provide knowledge on how pollinators use the landscape, dependent on monocultures or mosaic agriculture | **Monocultures** | |
| Better yields? | No windbreaks, very little water reservoirs, poor wildlife/functioning systems | |
| | As a researcher and not a farmer, who am I to have a say in farming practices? | |
| | In academic setting, forgetting the people behind the monocultural practices | |
| | Decrease carbon storage if changed from monocultural forestry to other practices | |

## Session 2: Another one bites the dust – the air we breathe, air pollution and health

Our atmosphere is vital for maintaining life on Earth and the composition of the atmosphere fluctuates over time. Some changes are natural, whilst current changes are substantially anthropogenic. The quality of the air is closely linked to the earth's climate and ecosystems and impacts human health. The relationship and feedback mechanisms between air particles, health and climate change are complex and was explored in this workshop session.

The three presentations held in this session each had various approaches and perspectives on the complex issues related to air quality. With examples on public health effects, air quality in megacities and how trees and urban greening can affect the air quality and people's health. These presentations gave good examples and backdrop for the following discussion questions, which resulted in the key points summarized in Table 2.

**Table 2. The key points of advantages, disadvantages and possible solutions on air quality and health that were produced by the participants at the workshop, categorized into themes.**

| Advantage/possibility | Disadvantage/threat | Possible solutions |
|---|---|---|
| **General** | **General** | **General** |
| More work (research) | New 'good' car vs. old (higher emissions). Climate and biofuel for carbon neutrality? | Improve urban planning |
| Human lifestyle | Morbidity, risk on human health | Data collection and quality |
| **Urban greening and BVOCs** | How to reduce exposure? | Use willingness to pay method |
| Including BVOC emissions in planning can reduce air pollution. Low emitting species/if no NOx is present lead to depletion of ozone | Economic feasibility of 'new' fuels. Grow food or fuel? | Not all or individual responsibility, but steering is needed |
| **Air quality** | Policy implication. Takes long time to discuss/get regulations in place | **Urban greening and BVOCs** |
| Reducing soot/changing into other air pollutions is often good for both climate and health | Economy. The solutions must be attractive to big actors. Cannot put a value on carbon storage | Remove NOx gases from anthropogenic sources. With low NOX, BVOCs can deplete ozone and leading to better air quality |
| Clean air is a possibility | **Urban greening and BVOCs** | Take BVOC emission potentials into consideration |
| **Health** | Will the vegetation chosen be good or bad for air quality? | **Air quality** |
| Focus on the health impacts of rising temperatures to interest people | Produce NOx which stress trees and increase Biogenic Volatile Organic Compounds (BVOC) | Policy and society – shift in standards |
| To know more about health effects | If BVOCs are not used in planning, stressed high emitting trees from climate change might lead to emission patterns that can worsen air quality | |
| | **Air quality** | |
| | Challenge to reduce pollution by reducing priorities | |
| | Where can we build/develop cities in dense areas in the future? | |
| | Some areas might have to be closed due to legislation couple to air quality | |
| | Only see cost of action, not cost of inaction | |

## Session 3: Nature, society and impacts on sustainability

Nature and society are the interactions and relationships between people and the natural world. The high pressure that humans put on the Earth system is leading us towards a planetary crisis of climate change, biodiversity loss and increasing pollution and waste. The good news is there are ways to address the triple planetary crisis. How do we maintain, protect and enhance natural and cultural resources in an ever-changing complex world, and are there ways to integrate actions to address multiple changes simultaneously?

The three presentations all touched upon complexities of sustainability measures, taking the examples of plastics and how they impact microorganisms, the establishment of solar panels on new and existing infrastructure, and social mobilization for low-carbon living through flight-free movements.

**Table 3. The key points of advantages, disadvantages and possible solutions that were produced by the participants at the workshop, categorized into themes.**

| Advantage/possibility | Disadvantage/threat | Possible solutions |
|---|---|---|
| **General** | **General** | **General** |
| Seeing them as examples of social phenomenon, not just technical | Convenience is at the helm of all three topics | Rethink the way we consume – not only greener but less. What levels of consumption should we have? |
| Public good vs Ease of access, Luxury vs Necessity | Hidden costs of business-as-usual make change seem less desirable | Implementing systems/ transformative change, not just small fixes |
| A matter of prioritizing (the possibilities for change are already there) | Allocation of responsibility bet. Individual & society: easier to do it right for an individual. Governments hesitant to intervene, eg removing tax on plastic bags. Limited choices, easier with subsidies. | Make visible the things we can gain by switching to sustainable choices. Can be desirable, not a sacrifice. |
| Focusing on all problems together (possibility and threat) | Solutions become simplifications of complex issues | Legislation moving ahead of the curve |
| Asking 'What drives people?' Incentives to make sustainable choices. What's the gain? | Getting stakeholders to work together to make projects efficient or well-received. | Communication a critical missing link? Between research and practice? |
| We are at a point where we need transformative change. How to set incentives right. | We are not treating climate change as a crisis and cannot produce out of it | Considering taxation/market price/recycling quotes & prices |
| **Plastics** | Where should initiative come from. Top-down, bottom-up, both? | Rethinking to what lifestyles do we aspire. |
| When we finally do something (eg plastic tax) needs high efficacy | What would be the effect on nature (upon creating new systems)? | **Plastics** |
| How to replace plastic/minimize consumption? People are comfortable as things are. | Always trade-offs between different sustainability goals | Marketing (both problem and solution) |
| **Solar panels** | **Plastics** | Get rid of 'just-in-time' mentality |
| Asking if solar is the best alternative in Sweden among available renewable energy sources | Is seen as solution to sustainability (eg less food waste) | Create new systems that don't need packages |
| **Flight-free movements** | Lack of awareness of consequences | Separate waste streams? |
| Cultural, social, bohemian, modern | Alternative solutions to plastic are yet not desirable | **Solar panels** |
| Understanding the facts - Business vs. Leisure, Commercial vs. Private. | Consumer – producer – recycler: stretches over national borders | Explore possibilities, ex sound muffling |
| What flights are necessary in future | **Solar panels** | Look for synergies |
| Funding for sustainable transport options is needed. | Moving from small-scale to industrial | Legislation to focus on solar potential in new construction |
| | **Flight-free movements** | **Flight-free movements** |
| | Issue of land grabbing with carbon offsetting | Look for synergies |

# CEC session: 15 years of Environmental science – from 2008 to now

Environmental science research is based on a fundamental understanding of natural processes and how they are affected by human activity. Over the years, the topics covered and their focus have changed. Both regarding the scientific questions asked and the people who have been involved in the development of the research education. The interdisciplinarity of the research education has since the beginning been seen as important to better understand the interlinkages of the subject. But it comes with additional challenges, such as double affiliations increasing individual PhD student's workload, sense of belonging and who is responsible for both administrative tasks and that the education provides collaboration across traditional subject boundaries.

During the session, an interactive timeline was presented, where the major developmental changes within the research education over the years were highlighted. Interspersed into the presentation, alumni and a current PhD student had been asked beforehand to share something from their respective PhD student time. What was discussed, what were the main issues and how was the PhD community were a few suggestions that were brought up. One thing was for sure, 'what does environmental science entail?' has been a standing question throughout the passing of time and will continue to be discussed in the future as well.

The presentation session was followed with a table discussion, where both alumni and current PhD students discussed what they have learned and how the education can be developed in the future. The key points are summarized in table 4.

**Table 4. The key points presented by the participants regarding what they have benefitted from the research education in Environmental Science and suggestions for future improvement.**

| What benefits have you gained from your PhD education? | How can the education be improved? |
|---|---|
| Encouragement | Who has the responsibility? Admin, economy… |
| Community-feeling | Create an Environmental Science identity |
| Understanding the value of interdisciplinarity | More philosophy! Social science methods! |
| Enriching discussions | Social interactions are important |
| The education gives an ability to see the broader perspective and understand the value & importance of merging science with other subjects | Environmental Science becomes interdisciplinary when we work together, so important to have many opportunities to meet and discuss |
| Project leader skills | Keep discussions about environmental science |
| Technical skills in e.g. data handling and information finding | Project management course should be reintroduced |
| Communication skills | History of environmental science |
| Confidence! I realized that I am the expert | Become a better policy analyst |
| Grit! Having stamina and perseverance to keep going when work is hard and slow and you feel there are no rewards | Double affiliations still make things complicated. Double amount of meetings, courses – but where are the credits? |
| Critical reflection and thinking | |

# ClimBEco session: ClimBEco – from 2010 to now

During this session we travelled from the establishment of ClimBEco in 2010 until now and how the programme has developed. The acronym ClimBEco stays the same, but from 2024 it stands for "Climate, Biodiversity and Ecosystem services for a sustainable world". The slight but intentional change in wording shows normative motivations in the research school activities to not only support PhD students in their education but to change the world around us into something more sustainable.

This session was aimed to provide a timeline on how ClimBEco has, and continues to develop, and to provide the opportunity for alumni's and current PhDs to provide their feedback and suggestions for ClimBEcos continued development.

**Table 5. Suggestions and improvements for the research school connected to general improvements, connected to the participant's research field and to alumni activities.**

| General about graduate school | General reflection from research field | Alumni activities |
|---|---|---|
| Keep the mentoring programme (repeated many times!) and better marketing of it | The need to write good research proposals /grant proposals | Online lunch seminars, "meet the expert" seminars or seminars including a meal |
| Keep it easy to participate, and keep good structure for courses | Putting your research into a broader context | Semi-regular alumni meetings like this one, including eg 'speed dating' for more interaction |
| Keep structure for annual meetings | Intercultural competence | LinkedIn |
| Keep fun/interactive activities, and training soft skills | Climate risk adaptation | Advertise job opportunities from alumni / Job market |
| Keep supporting young researcher meetings, creating networks and for PhDs to organize activities themselves | There are no courses, - this is a very relevant topic 'in the real world' | Alumni portraits and listed names of alumni on ClimBEco website to be able to look up |
| More inter-faculty interactions | Include training in grant writing | |
| More student engagement in choosing the topics/activities | Include training in project management | |
| More follow-up after annual meetings to further ideas discussed and communicate them to relevant actors. | | |
| More collaboration with actors outside academia | | |
| More practice presenting | | |
| More prep for work outside academia (eg invite employees/ companies/municipalities) | | |
| Help navigate travel and other kinds of grants, reinstate travel grants | | |
| More funding for teachers outside Faculty of Science to run courses | | |
| Article club/reading interdisciplinary articles to broaden read literature. Thematized. | | |
| Connect with master students | | |

# Summary

To create this alumni event was for sure not an easy task. Countless hours have been spent finding contact information to about 250 individuals who have come and gone over the last 15 years. A lot of thought has gone into deciding topics that are as relevant as possible to entice participation. What should the length be so that participants from both within and outside of academia find it worthwhile to attend? And how do you create those often small moments where you either can catch up with an old friend or get the courage to talk to someone completely new?

The result of all this work was the foundation of the alumni event. Without it, the event would not have had the promise of even being successful. But the true reason for the success is all the participants who attended. With their individual backgrounds and purposes for attending and for keeping an open mind to new ideas and meetups.

We are extremely happy with how this event turned out and it was great for us to see all the interactions that happened in the hall, outside or over dinner. We will bring these warm sunny days in May with us and we wish you the best, no matter what you work with or where. It was truly amazing!

-Josefin, Cheryl, Ylva and Natascha

*The participants at the CEC/ClimBEco alumni event in front of the white University building.*

| Participation list | | |
|---|---|---|
| **Name** | **Occupation** | **Work place** |
| Arvid Bolin | Teacher | Korsbackaskolan, Kävlinge municipality |
| Adrian Gustafson | Researcher | Lund University |
| Anja Zimmerman | Librarian | Lund University |
| Anna-Karin Björsne | Environmental consultant | COWI |
| Annika Söderman | Municipality ecologist | Eslöv municipality |
| Antje Gärtner | PhD student | Lund University |
| Arun Rana | Senior scientist | Frankfurt School of Finance and Management |
| Carlos Gómez-Ortiz | PhD student | Lund University |
| Cecilia Hultin | Environmental engineer | Hässleholm Miljö AB |
| Cecilia Larsson | PhD student | Lund University |
| Cerina Wittbom | Research coordinator | Lund University |
| Chansopeaktra Sovann | PhD student | Lund University |
| Cheryl Sjöström | Coordinator ClimBEco | Lund University |
| Christian Stiegler | Postdoc | University of Göttingen, Germany |
| Claire McKay | Research coordinator Stem cell center | Lund University |
| Daniel Tajmel | PhD student | Lund University |
| Edith Hammer | Senior lecturer | BECC, Lund University |
| Emma Axebrink | PhD student | Lund University |
| Erica Jaakkola | PhD student | Lund University |
| Florian Sallaba | Lead Data Scientist | Husqvarna Group AB |
| Geert Hensgens | Postdoc | Vrije Universitet Amsterdam |
| Georg Andersson | Researcher | Lund University |
| Hakim Abdi | Researcher | Lund University |
| Hani Younes | PhD student | Lund University |
| Hanna Ekström | PhD student | Lund University |
| Hanna Marsh | PhD student | Lund University |
| Hao Zhou | PhD student | Lund University |
| Helena Hanson | Researcher | Lund University |
| Henner Busch | Researcher | Lund University |
| Ida Lunde Hygum | PhD student | Lund University |
| Jesper Sörensson | Publisher | NE Sverige AB |
| Johan Eckdahl | PhD student | Lund University |
| Johan Friberg | Associate senior lecturer | Lund University |
| Johan Genberg Safont | Senior scientific advisor | Swedish Environmental Protection Agency |
| Johanna Birgander | Administrative official | County administration board |
| Josefin Sjöberg | Student coworker ClimBEco | Lund University |
| Josefin Winberg | PhD student | Lund University |
| Julia Kelly | Postdoc | Lund University |
| Julia Weber | PhD student | Lund University |
| Juliana Dänhardt | Research coordinator | LU Land, Lund University |

| Participation list | | |
|---|---|---|
| **Name** | **Occupation** | **Work place** |
| Kerstin Engström | Market gardener | Fätenborg gård |
| Klas Lucander | PhD | Lund University |
| Lina Nikoleris | Research administrator | Lund University |
| Madeleine Petersson Sjögren | Project employment | Lund University |
| Maria Karamihalaki | PhD student | Lund University |
| Maria Wittemann | Associate researcher | Gothenburg University |
| Md Rafikul Islam | PhD student | Lund University |
| Melanie Karlsson | PhD student | Lund University |
| Micaela Mafla-Endara | PhD student | Lund University |
| Minchao Wu | Researcher | Lund University |
| Mitro Müller | PhD student | Lund University |
| Moa Sporre | Senior lecturer | Lund University |
| Niklas Boke Olén | Team leader satellite analysis | The Swedish Board of Agriculture |
| Pedro Rosero | PhD student | Lund University |
| Pål Axel Olsson | Professor | Lund University |
| Qin Tao | PhD student | Lund University |
| Saga Bergqvist | PhD student | Lund University |
| Sara Ullström | PhD student | Lund University |
| Shubham Singh | PhD student | Lund University |
| Sofia Blomqvist | PhD student | Lund University |
| Terese Thoni | Education coordinator | Lund University |
| Therese Irminger Street | Teacher | Jensen gymnasium |
| Tomas Karlsson | Development engineer | Saab Kockums |
| Xiaobing Zhang | Researcher | Technical University of Denmark |
| Ylva van Meeningen | Research administrator | Lund University |
| Zhendong Wu | Scientific production developer | ICOS, Lund University |

**Thank you for your participation!**

**We hope to see you again in the future.**

*The participants at the CEC/ClimBEco alumni event, wrapping up the indoor photo shoot.*