



Newsletter 2

June 2020

Hello and welcome to our June Newsletter.

Lockdown continues to limit many of our activities, but we are looking forward to its gradual easing and to being able to, safely, meet up again and get back out into the field.

Until then, we continue to do the best we can using virtual communication. While not ideal, we nevertheless continue to get work done, initiate new projects, and engage the wider community with our work.

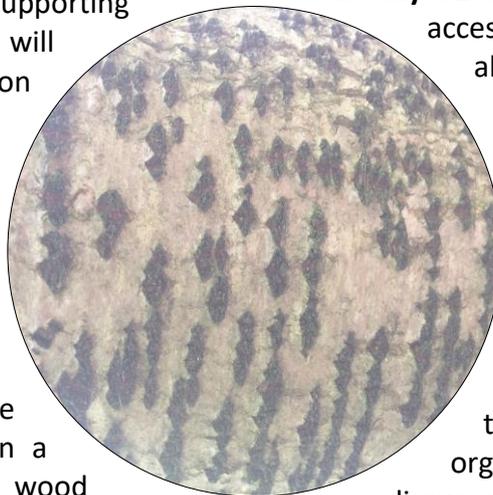
Ongoing projects and future opportunities

Climate-KIC Landscapes as Carbon Sinks

The [Landscapes as Carbon Sinks](#) project is progressing well with a flurry of activities on land use partnerships, bioeconomy, finance, and soil carbon. The level of interest from partners across Scotland and beyond is very encouraging. To keep up with the volume and breadth of activities that this project demands, we have taken on a new research assistant, Jonathan Morley. Jonathan will be supporting Hester in her work, and will soon be taking the lead on some aspects of the work.

In the past couple of weeks the project has been working closely with the Scottish Government's Land Commission to review models for Land Use Partnerships. We also ran a workshop on building a wood based bio-economy in construction, which included partners across the value chain. Both activities are fostering new partnerships through which new ideas for leveraging change are beginning to emerge. This is only the start of an iterative process, with the next bioeconomy workshop already scheduled for mid-July.

The project is being managed by Hester Robertson, and we encourage all those interested in being involved with this project to contact Hester directly on hester.robertson@ed.ac.uk.



Edinburgh-Helsinki Partnership Programme on Forests

The [Edinburgh-Helsinki Partnership Programme on Forests](#) was launched in June by the University of Edinburgh and the University of Helsinki, and is coordinated through the Centre. This programme includes a current call for proposals for four PhD projects. Two projects will be hosted at Edinburgh, and two more at Helsinki. All projects require at least one supervisor from both universities. **The deadline for applications is July 31st.** More information can be accessed using the link given above.

The Environment and Society Student Forum (ESSF) is still running and is happy for any Edinburgh-based PhD students working in areas of environment and society to join their sessions. ESSF is organising monthly sessions to discuss methods, writing, ethics and general well-being. Please contact either Jack (jack.covey@ed.ac.uk) or Ellie (ellie.wood@ed.ac.uk) for more info or if you wish to be added to the mailing list.

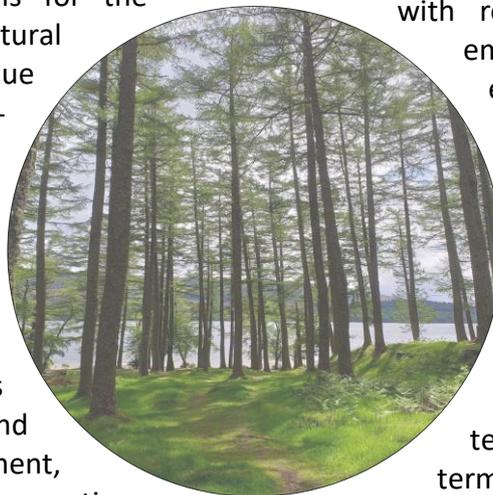
The Edinburgh Environment and Development Network (EEDN) was initiated by Clare Barnes and Sam Staddon in early 2018 in order to bring together academics and practitioners working on issues of environment and development from around Edinburgh.

The network aims to promote discussion around topics of interest, a sharing of knowledge and experience, a greater awareness of each other's work, potential to collaborate on proposals and projects, and just a chance to get to know each

other. Sessions are currently suspended but you can access [presentations from past sessions](#) through the Centre website.

New funding, grant awards, and memberships

Mat Williams has been invited to join the **European Space Agency Copernicus Hyperspectral Imaging (CHIME) Mission Advisory Group**. CHIME is a high priority satellite mission for Europe. The Main Mission Objective is to provide routine hyperspectral observations for the management of natural resources. CHIME's unique visible-to-shortwave infrared spectroscopy-based observational capability will in particular support new and enhanced services for food security, agriculture and raw materials. This includes sustainable agricultural and biodiversity management, forest health, soil properties characterisation, sustainable mining practices and environment preservation. There are exciting links from CHIME to the activities of the [NERC Field Spectroscopy Facility](#) which is based in the School of GeoSciences, including our new drone-mounted hyperspectral imager.



Sam Staddon and Clare Barnes were awarded a grant from the University of Edinburgh's '**Global Challenges Theme Development Fund**'. The grant will be used to develop a cluster of researchers, practitioners and policy-makers working on the theme of equitable and sustainable livelihoods in a changing rural environment in Nepal and India. The cluster will initially focus on developing

insights into how we learn from interventions to support achievement of the SDGs and ensure that they 'leave no one behind'.

Andrew Nottingham (post doc with **Patrick Meir**) has won a 5 year **NERC Independent Research Fellowship** applied for through Geosciences. Following publications in, eg, Ecology, GCB, Ecology Letters and Nature (in press), Andrew will work on the carbon cycle and microbial ecology of tropical forest soils. Uncertainty with respect to carbon dioxide emissions from soils is extremely large for this century because of gaps in understanding of the biogeochemical responses by soils to warming. Our recent work shows a large role for the tropics, including a substantially larger temperature response in terms of carbon dioxide emissions from tropical forest soils than observed elsewhere. Andrew's project will combine experimental and field observation methods, and has a principal focus in the Americas: in Panama and Andean South America.

Patrick Meir's recently-awarded **CSSP project** (Climate Science for Service Partnership in Brazil) funded by the UK Government's **Newton Fund**, has just started. The project will support new work at his large-scale field experiment in Eastern Amazonia, the world's only long-term tropical forest drought experiment, and the findings will be deployed to inform model development of the UK's land-surface model, JULES.

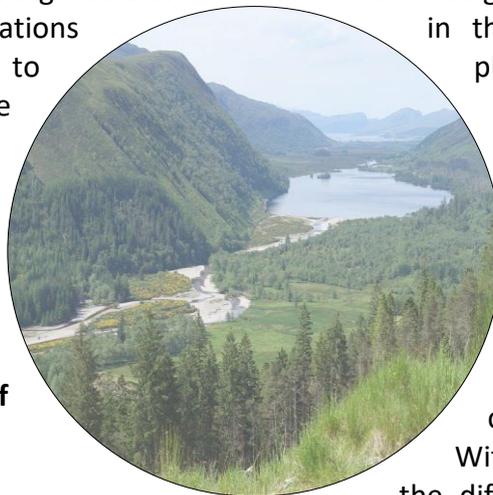
SRC-GCRF Urgent COVID-19 grant funded.

Gary Watmough is PI on a project looking at mapping aspects of social distancing within the district of Bulawayo in Zimbabwe by combining data from census, open street map and high resolution satellite imagery. This is a collaboration with the Lupane State University in Zimbabwe, and School of Engineering UoE.

Sophie Holcroft will be joining us as an **EPSRC DTP CASE conversion funded PhD**

starting in September with case partner LTS international - Digital Agriculture: How diffusion of innovations occur from planning to adoption, which will be looking into how digital technologies, data science and remote sensing can lead to the transfer of agricultural innovation.

Congratulations to all of them!



Media and Recent Publications

Paper on Forest loss escalates biodiversity change

On 18th June 2020, **Gergana Daskalova**, PhD student supported by a Carnegie-Caledonian Scholarship and the NERC E3 programme, her supervisor **Dr Isla Myers-Smith** from the School of GeoSciences and their co-authors published a paper in the journal Science on the impact of forest loss on biodiversity across the globe.

The amount of land that forests cover has increased and decreased over the Earth's history ever since the first tree took root. This forest cover change - trees lost with logging and disturbances like hurricanes,

and gained following restoration or as farming becomes less intense - has continued to recent times. But in some parts of the world such as the tropics, forest loss is accelerating.

Forests support around 80% of all species living on land. The study asked how forest loss influences this biodiversity over time and around the world. The study found that biodiversity change is amplified by forest loss at sites across the planet. Surprisingly, from dense tropical rainforests to the stunted boreal forest, intensified gains and losses were found

in the numbers and types of plants and animals around the world. But, biodiversity change did not always happen right away. The longer species live, the longer it takes for the effects of forest loss to manifest themselves, and sometimes effects can carry across generations.

With a better understanding of the different ways, both positive and negative, in which forest loss influences biodiversity, we can improve future conservation and restoration.

To read the paper:

Landscape-scale forest loss as a catalyst of population and biodiversity change
<https://science.sciencemag.org/cgi/doi/10.1126/science.aba1289>

For a public summary:

How forest loss has changed biodiversity across the globe over the last 150 years
<https://theconversation.com/how-forest-loss-has-changed-biodiversity-across-the-globe-over-the-last-150-years-140968>

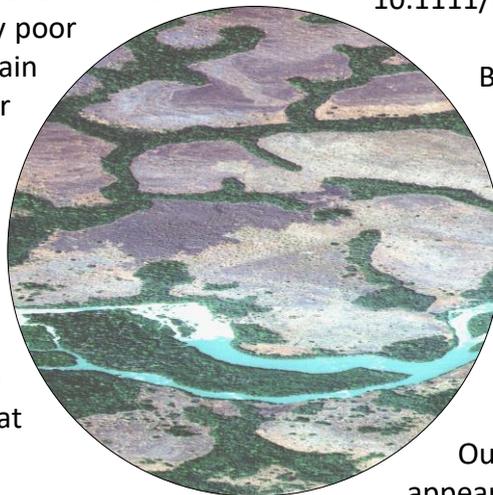
For a video summary:

<https://vimeo.com/430310639>

To like the Twitter thread:

<https://twitter.com/gndaskalova/status/1273688882694029318>

Ricardo Segovia, a postdoctoral fellow working with **Kyle Dexter**, recently published [a paper in Science Advances](#) that is the first to study the evolutionary assembly of tree communities at inter-continental scales. The study shows that temperate forests and tropical dry forests house numerous distinct tree lineages that give them a distinct evolutionary identity. Conventional wisdom had been that they are just evolutionarily poor subsets of the tropical rain forest tree flora. Further the study shows that there is strong evolutionary conservatism for climatic niche, and that this conservatism is the main force determining where tree lineages are found at continental scales.



Some of the press:

<https://theecologist.org/2020/may/11/beyond-rainforest>

<https://www.earth.com/news/tree-diversity-in-temperate-and-dry-forests-should-not-be-overlooked/>

https://www.eurekalert.org/pub_releases/2020-05/uoelbr050420.php

Steve Hancock has co-authored two more papers on the measurement of forests from new satellite technologies:

Measuring biomass with the latest lidar and radar satellites:

<https://www.sciencedirect.com/science/article/pii/S0034425720301498>

The NASA GEDI lidar mission paper:

<https://www.sciencedirect.com/science/article/pii/S2666017220300018>

Patrick Meir has also had a few paper out:

Nottingham AT, Meir P et al. (2020). Large soil carbon loss from experimental warming in a tropical forest. Nature (in press).

Meir P et al. (2020). Respiration in wood: integrating across tissues, functions and scales. New Phytologist, 1824-1827. DOI: 10.1111/nph.16354

Bittencourt PRL et al. & Meir P, Rowland L (2020). Amazonian trees have limited capacity to acclimate plant hydraulic properties in response to long-term drought. Global Change Biology, DOI:10.1111/gcb.15040

Our staff have also been busy appearing on **podcasts!**

Have a listen to Kim Mcallister and Murray Collins's podcast on space that features CSFL's **Ed Mitchard** and **Steve Hancock**:

<https://anchor.fm/edinburghspacedatacapital/episodes/Space-Data-Capital-ec4p3p>

In this podcast, **Gary Watmough** talks about the role that satellite data can have in mapping socioeconomic conditions:

<https://anchor.fm/edinburghspacedatacapital/episodes/Space-business-and-sustainability-edt2k0/a-a25m3mf>

Contact

If you have any items you would like us to include in our August Newsletter, please email them to

natasa.honeybone@ed.ac.uk