

Reclamation and Landscape Development

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A Newsletter for the Helmholtz-Alberta Initiative (HAI) Land Reclamation Theme and the Land Reclamation International Graduate School (LRIGS)

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LRIGS Coordinator: Michal Guzowski

HAI Land Reclamation Theme Coordinator: Stacy Campbell Court

Successful HAI Science Forum and LRIGS Excursion



LRIGS Excursion

Participants:

Mohd Faidz Shahimin,
Pamela Sabbagh,
Sarah Ficko, Valerie
Miller, Matthew
Gelderman, Ghulam
Murtaza Jamro, Jin-
Hyeob Kwak, Kangho
Jung, Zhichao Jiao,
Federico Mollard, Jinhua
Liu, Ju Zhang, Victoria
Collins, Michal
Guzowski, Anna
Schneider, Steffi
Schillem and Julia
Krümmelbein

The Second Annual HAI Science Forum was held in the beautiful city of Potsdam in Germany. Twenty-two graduate students, post doctoral fellows, academic and support staff from the Department of Renewable Resources at the University of Alberta travelled to join their colleagues from collaborating Helmholtz institutes and German Universities. The trip included the first LRIGS excursion to research and historical land reclamation sites in Eastern Germany from September 8 to 17.

The German Research Centre for Geosciences (GFZ) in Potsdam hosted the science forum main activities. Dr Peter Boehm, Canadian ambassador to Germany, Dr Reinhard Hüttel, scientific executive director of GFZ, and Dr Lorne Babiuk, Vice President Research from the University of Alberta, welcomed participants and opened the forum. Students and post doctoral fellows from Canada and Germany featured some of their research in oral presentations and posters. Oral presenters from the HAI



HAI Student Pamela Sabbagh at the Science Forum

Land Reclamation Theme were Ghulam Murtaza Jamro from the University of Alberta, Michael Lappé from the German Research Centre for Geosciences (GFZ) and Magdalena Sut from Brandenburg Technical University (BTU), Cottbus. HAI Land Reclamation Theme posters were displayed by Dr Federico Mollard, Dr Kangho Jung, Zhichao Jiao, Jin-hyeob Kwak, Pamela Sabbagh, Ju Zhang, Jinhu Liu, Victoria Collins, Shirin Zahraei and Mohd Faidz Shahimin from the University of Alberta, Mareike Noah from GFZ and Simon Spyra from BTU. Valerie Miller, Sarah Ficko and Matthew Gelderman, the new LRIGS cohort of graduate students, attended the forum. Participants toured the picturesque and historical Albert Einstein campus, then ended with a barbeque and awards ceremony in Potsdam.

The next day, the HAI land reclamation and LRIGS students joined the HAI Science Forum field trip to Chicken Creek, an artificial water catchment in the Welzow-Sued mining area near Cottbus. Dr Wolfgang Schaaf, Dr Werner Gerwin, Dr Michael Elmer and Dr Uwe Schneider, discussed development of the research site and how scientists from German universities and technical institutes are successfully exploring initial phases of early ecosystem development and primary succession after disturbance. A nearby experimental vineyard developed on reclaimed coal mine lands was the setting for a pleasant lunch where tour participants enjoyed the wine produced from the grapes grown on the site. Ansgar Quinkenstein joined the tour at the seven acre agroforestry site to explain alley cropping with alfalfa, grass and black locust trees. Many pictures were taken at the next stop, the active Vattenfall open cast mine. Tour participants got up very close to the innovative bucket chain dredgers and conveyer bridge system used to mine the large coal seam. The last stop of the day was the fascinating Vattenfall CCS Power Plant Schwarze Pumpe, where creation of oxyfuel and the storage of carbon were explained. LRIGS excursion participants then spent the evening in Cottbus.



F60 Industrial Monument near Cottbus



Decommissioned Altenburg Tin Mine

Several German scientists including Dr Schaaf, Dr Hinz, Dr Schneider, Dr Boldt-Burisch and Dr Wätzold conducted a workshop Wednesday morning at the BTU campus, highlighting reclamation research in Germany. In the afternoon, students toured the F60 lignite mining museum in Lichterfeld to learn about historical coal mining practices and equipment used in eastern Germany.

The tour included a day at the reclaimed uranium mine site near Ronneburg and field site tours hosted by Dr Thomas Raab from BTU. Participants enjoyed the famous Weimar cultural centre and the incredible historic city of Dresden. On the last day of the excursion the group visited the Pinge

von Altenberg historical mine site to learn more about tin mining and reclamation.

This remarkable trip would not have been possible without the cooperation and dedicated hard work from our German colleagues from BTU. We thank Steffi Schillem, Dr Julia Krümmelbein and Anna Schneider and all the presenters for their time and expertise. The journey was an adventure to remember.

The relationship between the Canadian and German reclamation partners is strengthened by pursuing opportunities such as the HAI meetings and LRIGS excursions and we look forward to more in the future.



Group photo at reclaimed Uranium Mine



Reclaimed Uranium Mine near Ronneburg

LRIGS is Now on Facebook

LRIGS has its own page on Facebook! In less than a week after the launch, 29 people have already “liked” us. Our goal is to have 100 likes before the end of the year. Currently, the LRIGS Facebook page features pictures from the recent trip to Germany for the second Annual HAI Science Forum and first LRIGS excursion. A Facebook account is not required to view the page; it is accessible to everyone at <http://www.facebook.com/lrigs>.



LRIGS Soon to Launch a New Promotional Video

Michal Guzowski, our LRIGS Coordinator, has been working with Dion Turner and David Puff from Puff Studios to produce a promotional video for LRIGS. Over the summer and fall, they filmed current HAI and LRIGS land reclamation students and post doctoral fellows including Anayansi Cohen-Fernandez, Zhichao Jiao, Federico Mollard, Victoria Collins, Matthew Gelderman, Sarah Ficko and Valerie Miller in action in the field, laboratory, greenhouse and classroom. One of our industrial partners, TransAlta, generously shared film footage of disturbed and reclaimed industrial sites that will be incorporated into the video. We are looking forward to what is sure to be a marvelous release from the studios of these talented individuals. The video will be linked for viewing to our website and Facebook page.

Profile on Dr Anayansi Cohen-Fernandez



Microsites Research Sites at the Devonian Botanic Garden and Mattheis Ranch

Dr Anayansi Cohen-Fernandez, originally from Mexico City, earned her BSc in Biology from Universidad Autonoma Metropolitana and her MSc in Conservation and Management of Tropical Natural Resources from Universidad Autonoma de Yucatan. She recently completed her HAI Theme 6 doctoral studies in development of soil building techniques and establishment of diverse native plant communities in a limestone quarry at the Exshaw quarry in Southern Alberta.

After completing her post doctoral program with Dr Naeth in December, Anayansi will move to Vancouver to join her husband Dr David Galvez and their son Santiago. Best wishes to Anayansi in her future career on the west coast!



Recent Reclamation Publications

Macdonald, SE, S Quideau and S Landh usser. 2012. Rebuilding boreal forest ecosystems after industrial disturbance. Pp. 123-160. In Restoration and reclamation of boreal ecosystems: attaining sustainable development. Edited by DH Vitt and JS Bhattia. Cambridge University Press.

Jung, KH and SX Chang. 2013. Soil and tree chemistry reflected the cumulative impact of acid deposition in *Pinus banksiana* and *Populus tremuloides* stands in the Athabasca oil sands region in western Canada. *Ecological Indicators* 25:35-44.

Siddique, T, T Penner, J Klassen, C Nesbo and JM Foght. 2012. Microbial communities involved in methane production from hydrocarbons in oil sands tailings. *Environmental Science and Technology* 46:9802-9810.

Desserud, PA and MA Naeth. 2012. An unexpected response of a bunch grass (rough fescue) to arbuscular mycorrhizae fungi. *Ecological Restoration* 30(3):165-168.

Raab, T, J Kr ummelbein, A Schneider, W Gerwin, T Maurer and MA Naeth. 2012. Initial ecosystem processes as key factors of landscape development – a review. *Physical Geography* 33(4):305-343.

News and Events

The first LRIGS lecture will be held November 27 and feature Dr Mohan Wali from The Ohio State University. His talk is titled “The Global Imperative of Ecosystem Reclamation: Some Principles, Practices and Challenges Ahead”. For more information visit the LRIGS News and Events page at http://www.ualberta.ca/~lrigs/news_events.html.

Dr Tariq Siddique has won the Agriculture, Life and Environmental Sciences Faculty Research and Innovation Award for 2012. Congratulations!

Dr William Shotyk has been awarded the prestigious Philippe Duhaufour Medal from the European Geosciences Union Division of Soil Science for 2013. Well done!

For more information on the Helmholtz-Alberta Initiative please visit:
<http://www.helmholtzalberta.ca/>

For more information on Land Reclamation International Graduate School at the University of Alberta please visit: <http://www.ualberta.ca/~lrigs/>

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