Spotlight on Sustainability

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Underground communities

"There are such interesting and beautiful creatures that live in soil that we don't generally think about or get to see, but every step we take is supported by thousands of little legs," according to Zoë Lindo, Assistant Professor in the Department of Biology. The Lindo lab explores how future climate scenarios affect patterns in biodiversity.

The soil-dwelling community, comprised of billions of microbes and insects, is critical to the healthy function of ecosystem services, like nutrient cycling and decomposition. Such processes are impacted by climate change, but systemic ecological effects are still unknown. Researchers have shown that a shift in plant communities has cascading effects underground that could turn the boreal forest into a carbon source. Moreover, in elevated warming and CO_2 conditions, carbon-sequestering sphagnum mosses shift to vascular grasses, whose roots decompose faster and are more nutritious for soil organisms. Insects thrive, respiration increases, and CO_2 levels rise further.

Dr. Lindo recently published the first empirical study proving insects also undergo "community downsizing" (the shift to small-bodied organisms) in soil under warming conditions. With more small-bodied organisms, reproduction and respiration occur even more rapidly. Soil ecology findings such as these put us one step closer to predicting how such complex interactions may be affected by climate change and impact our planet.

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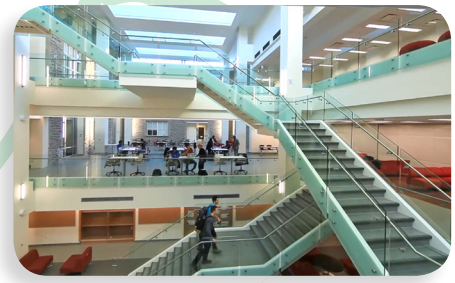
Plastic microbeads, often used as exfoliating agents, are now listed as a toxic substance under the Canadian Environmental Protection Act due to their adverse aquatic effects. Check ingredient lists on personal care products used at the sink or in the shower for microbeads (commonly listed as polyethylene or polypropylene), and consider switching to plastic-free ingredients.

Taking the LEED

This *Spotlight on Sustainability* applauds the Department of Physics and Astronomy for promoting sustainability in both its green building and research. The Physics and Astronomy Building (PAB), housing research ranging from space exploration to nanotechnology, is one of six LEED® certified buildings on campus. It was renovated and its atrium constructed using an exceptional amount of reused, local, and existing material, bringing in ample amounts of natural light. Learn more about the evolution of The Department of Physics and Astronomy at http://bit.ly/PABeureka.



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