Samantha Gidora

Title: eDNA air sampling for bats: implications for mine reclamation and closure

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Abstract:

Environmental DNA or eDNA sampling can determine the presence of organisms by detecting genetic material, like saliva, hair, and skin cells, that they shed into their environment. This technique has been rapidly adopted as a powerful tool for studying aquatic ecosystems. The recent advent of eDNA air sampling for detection of terrestrial wildlife represents a revolutionary approach to evaluating biodiversity. It could prove particularly useful for the study of mines and caves, which may be used by wildlife like bats, but are often inaccessible or unsafe to enter. Much is unknown about bat hibernation in BC. The recent arrival of the fungal pathogen that causes the deadly white-nose syndrome in bats is predicted to devastate BC bat populations. Understanding bat hibernation in BC is vital for an effective response to this threat. I am testing whether the presence of bats in mines can be detected by sampling the air. My results will provide insights into the value and limitations of eDNA air sampling and will inform our knowledge of bat use of mines in BC. With over 1,300 inactive underground mines in BC, tools for assessing bat use of mines are key for mine reclamation and closure. The goal of my project is to develop a non-invasive method to assess bat presence at roost sites that cannot be entered to conduct visual surveys. My research will advance our understanding of the readiness and applicability of an eDNA approach to inform bat conservation and land management decisions.