

**Speaker:**

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Date: Monday, Dec. 07, 2020**Time:** 4:00 pm - 4:50 pm**Zoom:** 952-3324-4564**Passcode:** 835322**Title:**

"Nest architecture response to temperature in Formica ants"

Abstract:

Social insects are among the most abundant arthropods encountered in terrestrial ecosystems and serve many functional roles that are beneficial to humans. One prominent ecosystem service that subterranean ants provide is the maintenance of healthy soil through aeration, decomposition, and nutrient cycling. The effect of ant colonies on soil properties has been studied for decades, yet little is known about ant nest properties like architecture due to the difficulty of observing these belowground patterns. Furthermore, many ant species span environmental gradients, and their behavior is largely dictated by the climatic and landscape features of their specific habitats. We explored how temperature shapes what can be considered as an 'extended phenotype' of ant colonies - nest architecture. Using a full factorial experiment, we investigated the nest architecture of montane Formica ant colonies from high and low elevation (~3000 ft difference). We allowed ants to nest in experimental chambers with soil surface temperatures matching the approximate local temperatures of high and low sample sites and measured nest architecture characteristics. Overall, we observed a plastic response of nest architecture to conditions experienced during nest construction. Our results suggest that subterranean ant nest architecture is more than merely a local adaptation to differing conditions; it plays a dynamic role in colony life.