**The Effect of Climate-Driven Phenological Shifts on Plant-Pollinator Interactions and Plant and Pollinator Reproductive Success

Anthony H. Slominski*, Ecology Department, Montana State University, Bozeman
Laura A. Burkle, Ecology Department, Montana State University, Bozeman

Plants and pollinators are shifting their annual bloom periods and emergence dates (i.e., phenologies) in response to ongoing climate-warming. However, the magnitude of phenological shifts can be species-specific, causing concern that unequal responses will disrupted plant-pollinator interactions (i.e., phenological mismatches) and create novel community composition throughout the growing season. The effects of phenological mismatches on plants and pollinators remains unknown, preventing conservation strategies that pinpoint the most vulnerable species. The goal of this study was to investigate the effects of phenological shifts on plants and bees by manipulating plant-bee community composition within mesh-sided enclosures (mesocosms). Plant-bee communities were assembled following a factorial design based on phenologies (i.e., spring vs. summer blooming plants and spring vs. summer emerging bees), allowing a comparison of plant-bee interactions and reproductive success within 'phenologically matched' communities (e.g., spring blooming plants with spring emerging bees) and 'phenologically mismatched' communities (e.g., spring blooming plants with summer emerging bees). Preliminary results suggest that interaction frequency was similar between 'mismatched' and 'matched' communities, implying that plants and bees can compensate for interactions disrupted by phenological mismatches. Currently, I am processing the reproductive data from both plants (i.e., seed set) and bees (i.e, total offspring) to determine if interaction frequency is indicative of reproductive success.