

## **EFFECTS OF MOUNTAIN PINE BEETLE ON BAT ACTIVITY IN WESTERN MONTANA (POSTER)**

Monique Metza\*, Ecology Department, Montana State University, Bozeman  
Shannon Hilty, Ecology Department, Montana State University, Bozeman  
Dr. Andrea Litt, Ecology Department, Montana State University, Bozeman

\*Indicates Presenter

\*\*Indicates Student Presentation

Bat activity throughout forests is likely influenced by stand structure, which can be altered by disturbance (e.g., fire, silviculture, and pests). The mountain pine beetle (MPB, *Dendroctonus ponderosae Hopkins*) is a major forest pest in the western United States that has caused tree mortality in millions of hectares of lodgepole (*Pinus contorta*) and ponderosa pine (*Pinus ponderosa*) forests. This disturbance can increase coarse woody debris (CWD) and open canopies through fallen snags. Our objectives were to 1) determine whether CWD can be used as a proxy to characterize severity of the MPB effects, and 2) assess how bat activity changes with MPB severity within lodgepole and ponderosa forests in western Montana. We measured CWD, assessed severity of MPB, and deployed acoustic detectors to evaluate bat activity during the early active season, prior to activity of newly volant pups. Ponderosa-dominated sites had lower average volumes of CWD compared to lodgepole sites. Overall, the amount of CWD did increase with MPB severity. We recorded 8.7 bat passes per night on average (95% CI = 3.2 to 14.2 bat passes/night). However, ponderosa forests (95% CI = 8.4 to 38.6 bat passes/evening) had 20.8 more bat passes per night on average than lodgepole (1.13 to 15.1). Variation in bat activity was not explained by MPB severity alone; future analyses will explore the influence of additional forest characteristics to help us understand how to manage forests in a way that is beneficial for bats.