**Drivers and Impacts of Mining Contaminants in Insectivorous Songbirds at the Mt Haggin Injured Area, Anaconda, MT

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Mining for precious metals contributes to habitat degradation and is a major driver of avian population declines. Mining yields a mosaic of waste products (unwanted heavy metals, metalloids, and minerals) that often remain unchecked in the environment. Exposure to these contaminants can severely impact organismal health and cascade through food webs, highlighting the complexity of contaminant transfer in polluted ecosystems. As avian populations across North America continue to decline, understanding how metal pollutants move through avian food webs and influence species persistence is critical. Western Montana ishome to the nation's largest Environmental Protection Agency Superfund complex, a legacy of Anaconda's extensive copper production. In 2012, Montana Fish, Wildlife, and Parks partnered with the University of Montana Bird Ecology Lab (UMBEL) to monitor songbird population trends at Anaconda's Mt Haggin Injured Area (MHIA). Data from >1,300 individuals across 50 species indicate that survival, diversity, and productivity have declined over the past decade. Understanding the role of mining contamination is essential to explain these patterns in MHIAbird populations. This project addresses two questions: (1) How do soil metal concentrations and diet composition near the Anaconda smelter influence blood metal concentrations in songbird nestlings? (2) Does blood metal concentration predict breeding success? This presentation will share preliminary data from soil metal samples across four study sites, summarize songbird nesting and blood metal data collected during the 2024 field season, and provide an outlook for the 2025 field season.