

**** Riparian Songbird Condition Reflects Both Diet Quality and Metal Exposure in the Mining-Impaired Upper Clark Fork River Superfund (Poster)**

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Mining contamination is a widespread ecological disturbance with disproportionate effects on river and riparian ecosystems that support breeding birds. Riparian songbirds rely heavily on insects to fuel their breeding seasons, particularly high-quality emergent aquatic insects. Elevated metals from mine waste can cause mortality during insect metamorphosis, limiting the availability of aquatic prey, or they can accumulate in insect tissues, causing toxic metal exposure. Thus, diet mediates a dual risk of metal exposure and nutritional stress for riparian birds, yet the relative importance of these stressors remains unresolved. To evaluate diet-mediated effects of mining contamination, we measured nestling body condition (fat score and size-corrected mass), telomere length (qPCR), diet composition (DNA metabarcoding), and blood metal concentrations (Pb, As, Cd, Cu, Zn, Se; ICP-MS) in four riparian songbird species sampled across the heavily contaminated Upper Clark Fork River watershed in 2022–2023. Blood metal concentrations were highest at the most contaminated sites, with species-specific patterns consistent with predicted reliance on aquatic versus terrestrial prey. Hierarchical Bayesian structural equation models revealed site-specific relationships among diet, metal exposure, and condition. Generally, greater reliance on aquatic prey was associated with higher fat scores and lower metal accumulation. Surprisingly, overall metal burden was not associated with condition; instead, higher lead and copper predicted lower condition, whereas higher selenium and arsenic were associated with improved condition, suggesting antagonistic or protective effects among metals. These results highlight the importance of diet and the complexity of metal mixtures as stressors for riparian birds in mining-contaminated systems.