

**DISTRIBUTION, SPECIES RICHNESS,
AND PREDICTIVE MODELING OF MONTANA PRAIRIE FISHES^{AFS}**

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The distribution and abundances of fish in prairie streams of eastern Montana are poorly known. Knowledge of fish assemblages and their habitat is critical to effectively conserve species and their environment. In 1999, the Montana Cooperative Fishery Research Unit initiated a large-scale research program to gain a better understanding of prairie-stream ecosystems; four Montana Fish, Wildlife, and Parks regions joined the effort in 2003. Most sampling locations were at streams that had no previous fish collections. Thirty-eight fish species were sampled; 28 species were native and 10 were introduced. Species richness varied from 0 to 17 per sample. The most common native species was fathead minnow (*Pimephales promelas*) and common carp (*Cyprinus carpio*) was the most prevalent introduced species. Although many streams sampled were intermittent with isolated pools,

most (82%) sites had fish present. In-stream habitat features, including widths, depths, and substrates were measured. Landscape habitat features including elevation, watershed area, soil type, and connectivity were obtained from GIS databases. As a pilot effort, we prepared models for the Musselshell River basin using landscape and site-level habitat data to predict the presence or absence of fish species. Additionally, we will construct models for all fish species in the prairie ecoregions of Montana, and assess the relative importance of site-level and landscape habitat features. By identifying the relationships between fish distribution and habitat characteristics, we hope to identify critical habitat for conservation of native fish species and assemblages.