

PEARL DACE IN THE BIG MUDDY CREEK WATERSHED: EXTIRPATION SAVED BY THE BARRIER

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During 2007, we reviewed Pearl Dace (*Margariscus margarita*) occurrence records and systematically resurveyed sites of current and previous occupation in the Big Muddy Creek watershed in NE Montana. Thirteen sites (4 main-stem Big Muddy and 9 tributary sites) were surveyed in June, and then re-sampled in September following Bramblett's prairie fish sampling protocols. Four of these locations had old museum pearl dace voucher records that had been resampled by MSU from 2000-2003, and are now confirmed absent. Northern pike captured in June surveys were vouchered; therefore the September survey could potentially document stream reach recolonization. Introductions of northern pike have been implicated in the decline of numerous local populations of native minnow species including the pearl dace. Our surveys collected 14 (9 native) prairie stream species. Pearl dace were only collected at one tributary stream site in the Big Muddy. Species that were closely associated with the pearl dace were fathead minnows, brook sticklebacks, northern redbelly dace and white suckers. Sites with northern pike present ($n = 4$) had significantly fewer fish species ($P = 0.0304$) than non-pike stream reaches ($n = 22$). Furthermore, samples from stream reaches with barriers from the mainstem Big Muddy ($n = 11$) had significantly more fish species ($P = 0.011$) and numbers of individuals ($P < 0.0001$) than sites without barriers ($n = 15$). Intact native prairie fish communities are becoming rarer to find. By documenting "non-pike" refuge areas or initiating pike removal projects, reintroductions of pearl dace may be considered as a management tool for the persistence of this species in the glaciated prairie streams of Montana.