

## Northern Glaciated Intermittent Stream



*Little Sandy Creek (D006) a reference condition Northern Glaciated Intermittent prairie stream*



*Murray Coulee (D006) slightly impaired Northern Glaciated Intermittent prairie stream*



*Cowen Coulee (E006) impaired Northern Glaciated Intermittent Stream fishless pool*

### Aquatic Ecological System Types D006 and E006

#### View key to subtypes

#### Community Description

##### Summary:

This ecosystem is found widely throughout the coulees, small streams (1<sup>st</sup> to 3<sup>rd</sup> order, average wetted width of 3m) and headwaters of Medium Prairie Rivers (B006) and Northern Glaciated Prairie Streams (C006, C008) within the Northern Glaciated Ecoregion. These small, cool to warm-water, low gradient and elevation (900-1200m) streams have origins in the alluvium and sedimentary geology of this region. Throughout their range these clear (typical) to turbid streams are characterized by usually vegetated long

pools separated from each other by narrowed riffle areas usually dry by early-summer forming isolated pools or a “string of pearls”. Once these systems lose their connectivity to the fish recruitment pools of downstream reaches (may be due to climatic factors such as drought), or never had fish potential, they become the fishless isolated pool ecosystem type (E006). The substrate can be gravel to cobbles in the shallow pools to silted gravel deeper pools with rooted vegetation. These pools, on average, remain filled longer and are cooler and wider than their Great Plains counterparts.

### **Fish Community:**

The resident fish community is dominated by the Brook Stickleback and Core Prairie Stream Assemblages. In the largest clear non-degraded pools members of the Northern Redbelly Dace Assemblage may occur. A reference-condition Northern Glaciated Intermittent Stream type will have fathead minnow, brook stickleback, lake chub (not as common), brassy minnow and northern redbelly dace in order of dominance. Without aquatic macrophytes in the pools, brook stickleback or northern redbelly dace will be rare. Typically this community will be co-dominated by fathead minnow and brook stickleback only, and just fathead minnow in truly degraded or non-vegetated systems. The E006 type will be fishless.

### **Macroinvertebrate Community:**

This community consists of members of the Prairie Stream and Pool Assemblages, occurring in cobbles and in the vegetative pool areas respectively. The reference community indicator species are characterized by the crustaceans (*Hyalella* and *Gammarus*), damselfly genera (*Coenagrion/Enallagma* sp. *Enallagma civile*, and *Ishnura*), many genera and species of the water boatman (Corixidae: *Sigara alternata*, *Sigara grosslineata*, *Trichocorixa*, *Trichocorixa nais*, and *Corisella*), snails (*Physella*, *Gyraulus*, and *Stagnicola*), mayflies (*Caenis* and *Callibaetis*), and beetles (*Haliphus*, *Oreodytes*, *Laccophilus*, *Hydroporus* and *Hygrotus*). As the complexity of the pool habitat decreases, the clinger habitat species, such as the damselflies and many of the water boatman taxa, will be lost. The truly intermittent fishless pool ecosystems (E005) may only exist for a few months. If these pools are dry for more than a year and then rehydrate, many invertebrates with resting egg stages dominate the pools, including crustaceans (*Ostracoda*, *Cladocera*, and *Copepoda*), fairy shrimp (*Branchinecta* and *Eubranchipus*) the clam shrimp (*Caenestheriella*), and the tadpole shrimp (*Lepidurus*).

### **Range:**

The Northern Glaciated Intermittent Stream Ecosystem occurs throughout the glaciated Great Plains regions of northern North America. Within Montana, this community exists in a multitude of streams and coulees mostly situated north of the Missouri River, with examples including the Little Sandy, Murray Coulee, Cowen Coulee, Rattlesnake, Little Sage, Coberg, E. Fork Battle, Black, Snow and Hell Coulee, Bitter, Buggy, and E. Fork Porcupine Creeks.

**Global Rank:** G5

**State Rank:** S5

### **Global/State Rank Comments:**

The number of quality occurrences in the state is unknown, but probably fairly common. This is a difficult community type to quantify given the past years of drought in the state and the tenuous nature of this aquatic system.