Headwaters Foothills River
Small Foothills River
Small Transitional Foothills River

Pryor Creek (D001) a Headwater Foothills River with a beaver dam in the Custer National Forest

Sweetgrass Creek (C002) a Small Transitional Foothills River near Big Timber, MT

Bear Creek (C001) a Small Transitional Foothills River with slight sediment impairment near Belfry, MT

Aquatic Ecological System Type C001, C002, C003, C004 and D001
View key to subtypes

Community Description

Summary:

This ecosystem is found in the moderate elevation (1200-2000m), upland foothill streams of the Foothills and Valleys or Middle Rockies and Isolated Mountain Ranges Ecoregions as they decrease in elevation and gradient. The smallest sub-type, the Headwaters Foothills River, is a 1st or 2nd order stream tributary to the Small Transitional Foothills and the Small Foothills River Systems, which are small-medium-sized

(2nd-4th order, average wetted width of 5m), moderately flowing rivers with permanent flow of strong seasonal variability due to melting snow pack from higher elevation mountainous areas. These streams represent the transitional areas from high gradient mountain stream to intermontane or prairie rivers. Small Foothills Rivers are tributaries to Intermountain Rivers and maintain average summer temperatures (<20°C) suitable for cool-coldwater fish species. In contrast, Small Transitional Foothills Rivers typically enter prairie rivers in the eastern part of the state and lose the ability to maintain cool water fish species at the lower elevations. The surrounding landscape is transitional as well with coniferous forests giving way to sage steppe with woody riparian areas. Beaver pond complexes are often characteristic habitats on these streams. Beavers find suitable conditions and dam building materials as the foothills stream gradient decreases. These ponds provide substantial trout habitat, but can warm beyond the tolerance of cutthroat trout. The native cutthroats will usually be pushed to the upstream reaches by the more aggressive brook trout. The substrate of these streams is usually boulder/cobble riffles, gravel/sand runs and pools, and silt bottoms in beaver ponds with large woody debris.

Fish Community:

The fish of this community are Coolwater Transitional and Traditional Trout Stream Assemblages. Indicator species of the Headwaters Foothills and Small Foothills Rivers include the native species westslope or Yellowstone cutthroat trout, mountain whitefish and mottled sculpin. However, the introduced brook trout and rainbow trout tend to dominate and become the focal species. As Small Foothills and Transitional Foothills Rivers proceed down gradient, inclusions of the longnose sucker, longnose dace and mountain sucker (Yellowstone drainages) into community occur. Additional fish species (carp, white sucker, lake chub and fathead minnow of the Core Prairie Stream Assemblage) may be found at the warmer lower end of the Small Transitional Foothills Rivers in the prairie regions. The shallow riffle areas of the larger foothills rivers entering Intermountain Rivers may provide spawning habitat for downstream populations of brown trout during their fall migration, and suckers, dace and rainbow trout in the spring.

Macroinvertebrate Community:

Reference condition Headwaters and Small Foothills Rivers are dominated by the Traditional Trout Stream Assemblage, with some members of the Medium Coolwater Transitional and Foothills Transitional Assemblages. The community indicator species are characterized by main channel, fast current mayfly, stonefly and caddisfly species (*Pteronarcys californica, Hesperoperla pacifica, Brachycentrus americanus, Rhithrogena, Arctopsyche grandis,* and *Lepidostoma* spp.), and the tipulid, *Antocha.* As Small Foothills Rivers proceed downstream and begin to warm (>17 °C) or are sediment impaired, degraded or dewatered, they will quickly lose the Traditional Trout Stream Assemblage and shift to the mayfly, caddisfly, beetle and dipteran species that form the Medium Coolwater Transitional Assemblage with indicator species *Hydropsyche, Optioservus, Baetis tricaudatus, Brachycentrus occidentalis, Helicopsyche borealis, Corynoneura, Constempellina, Prosimulium, Amiocentrus aspilis, Lara, Phaenopsectra, Plauditus*, and *Narpus.* Lower, warmer stretches of Small Transitional Foothills Rivers will begin to pick up species of the Transitional Prairie River Assemblage. Populations of western pearlshell mussel have been reported from this river ecosystem, although the populations may be in decline.

Range:

This type has been identified in the Custer National Forest (Beartooth District), Pryor Mountains, and foothills of the Belts, Judiths and other isolated mountain ranges. Many BLM managed lands contain this community where the National Forest lands transition to the foothills and valleys. The Middle Missouri/ Musselshell drainages contain the most representatives of this community type in the database.

Management:
Livestock use around the riparian areas of this ecosystem is common and can have strong local effects resulting in sedimentation, a shift of the macroinvertebrate communities from a Traditional Trout Stream Assemblage to the Medium Coolwater Transitional Assemblage, and a shift in fish communities from native cutthroat trout to introduced species, such as brook trout. High-density cattle usage can cause severe degradation, bank erosion, sedimentation and siltation on the riffle habitats and gravel spawning areas downstream. Water diversions lower in the foothills for agriculture may be an issue since these streams usually flow onto private lands as foothills grade into the valleys and decrease in elevation and gradient.

Global Rank: GU **State Rank:** S4

Global Rank Comments:
The number of occurrences is unknown, but probably abundant. In Montana, the community is reported from over 200 sites within the Foothills and Valleys Ecoregions and in the transitional zones of most mountain ranges in the state.