

Spring Creek



Armstrong Spring Creek (S002) within the Paradise Valley. Photo taken by Yellowstone Flyfishers, Inc.



DePuy's Spring Creek (S002) within the Paradise Valley. Photo taken by DePuys Spring Creek, LLC.



Big Spring Creek aquatic vegetation (S002) near Lewistown, MT

Aquatic Ecological System Type S001, S002, and S003 **View key to subtypes**

Community Description

Summary:

This ecosystem is found in the Montana Foothills and Valleys Ecoregion. Elevation is 1200-2000m. These small to medium (average wetted width from 2-15m, average summer temperature <15°C) rivers have moderated permanent flow with strong seasonal variabilities. Waters are mineral-rich and circumneutral to alkaline with pH of 7.0-8.2; clarity is often high. These factors contribute to lush growth of submerged aquatic vegetation, which may include watercress, *Potamogeton* spp., and *Myriophyllum* spp. These streams represent groundwater discharge input, therefore they do not experience severe flooding or drastic temperature shifts and have more constant flow. The substrate of these streams is

usually cobble riffles, gravel/sand runs and pools, with extensive beds of aquatic vegetation, and, unless they are degraded by cattle, flow silt-free and clear.

Fish Community:

Fish are from the Traditional Trout Stream Assemblage. The community historically had native species including westslope cutthroat, mottled sculpin, longnose dace, mountain whitefish, with Yellowstone cutthroat trout and mountain sucker in the Yellowstone drainages. However, the introduced brook, brown and rainbow trout tend to dominate and become the focal species of these systems.

Macroinvertebrate Community:

The Spring Creek type has abundant macroinvertebrate populations, but a relatively limited diversity. This unique low-diversity community consists of a combination of members from the Medium Coolwater Transitional, the Traditional Trout Stream, and the Foothills Transitional Assemblages. The community is dominated by the mayflies (*Tricorythodes* and *Ephemerella* spp. (usually *Ephemerella inermis* and *E. infrequens*)), the amphipod crustacean (*Gammarus*), and many Chironomidae. Other community indicator species include *Baetis tricaudatus*, caddisfly species (*Hydropsyche*, *Amiocentrus aspilis*, *Cheumatopsyche*, and *Brachycentrus occidentalis*), beetles (*Optioservus* spp.), and snails (*Gyraulus*, *Physella*, *Stagnicola* and Hydrobiidae).

Range:

The Spring Creek type has been identified in the foothills of many Montana drainages, particularly some of the more famous trout fishing sites: Armstrong's, Depuy's, Nelson's Spring Creeks of the Yellowstone, and Thompson, Ben Hart (tributary to the E. Gallatin), O'Dell, Warm Spring and Big Spring Creeks of the Missouri drainage.

Management:

Livestock use around the riparian areas is common and can have strong local effects resulting in sedimentation and streams becoming wider or shallower. High-density cattle usage can cause severe degradation, sedimentation and siltation on the riffle habitats and gravel spawning areas downstream.

Global Rank: GU

State Rank: SU

Global Rank Comments:

The number of occurrences is fairly well known and many spring creeks fall within private property. Very few spring creeks have had extensive biological inventories due to private land issues, but the potential of discovering new snail species is high (D. Gustafson, pers. comm.). Due to the constant temperatures, these streams can act as fish refuges during the summer and winter months with trout spawning areas on the gravel bottoms.