

Section 1.0 Introduction to the South Arkansas River Watershed

The South Arkansas River watershed is located in Chaffee County approximately 140 miles southwest of Denver, CO, in south-central Colorado (Figure 1-1). The watershed encompasses about 212 square miles, or less than one percent of the Upper Arkansas River in Colorado (CWCB 2011a).

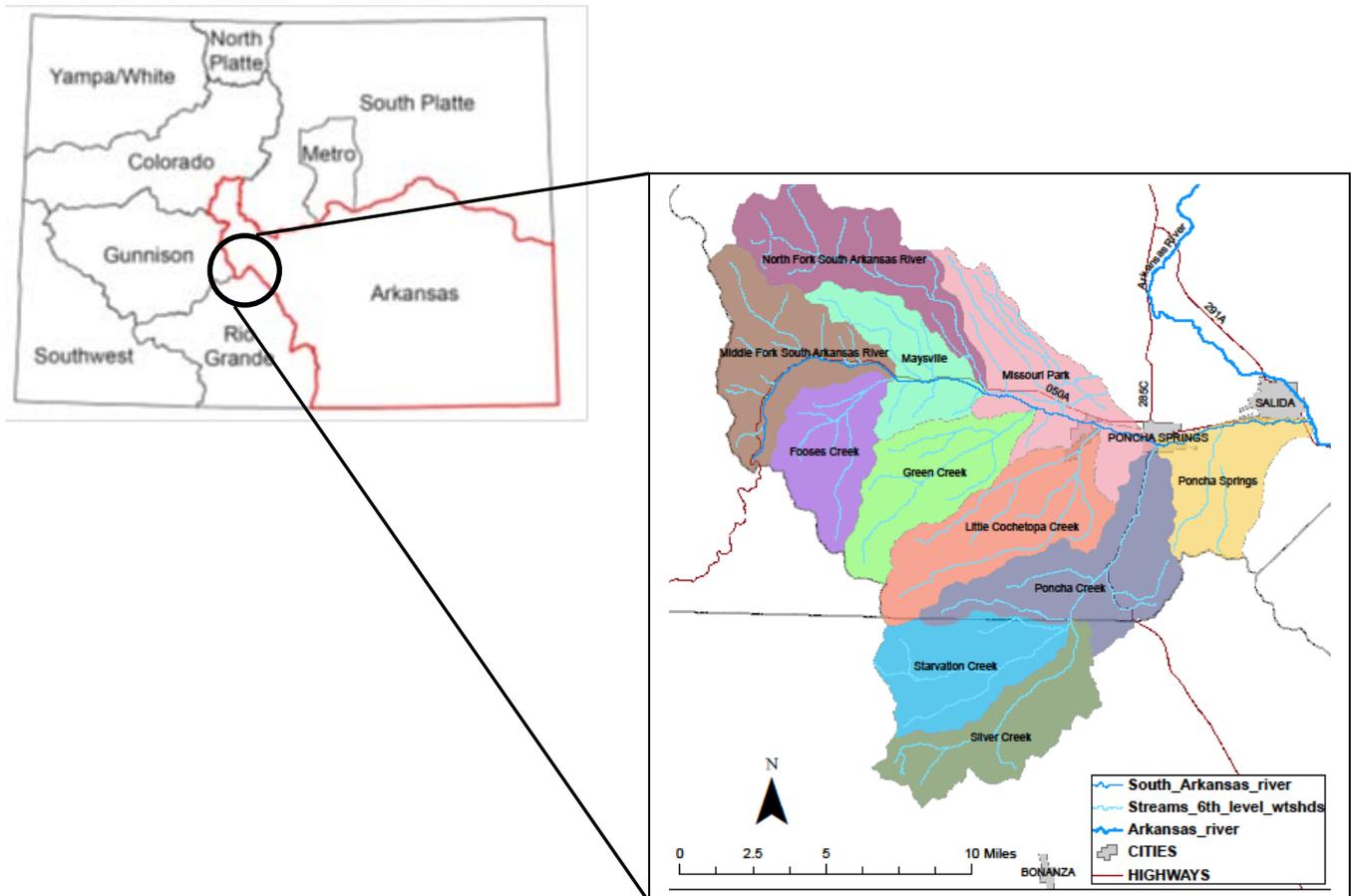


Figure 1-1. Location of South Arkansas River watershed
CWCB (2010), USFS (2013a)

The watershed is located in the Southern Rocky Mountains Ecoregion 21 (Chapman et al. 2006¹). Climate is dominated by the Sawatch Range to the west, a series of peaks and ridges above 12,000 feet that cause prevailing westerly winds to rise and deposit

¹ Ecoregion 21 corresponds to the NRCS Major Land Resource Area 48A, Southern Rocky Mountains (NRCS 2006) and to the USFS Section M331F, Southern Parks and Rocky Mountain Range (USFS 2013b).

much of their precipitation as snow from October to May. As a result, runoff in the watershed is dominated by spring snowmelt in May and June. In addition, brief, heavy thunderstorms occur during July and August.

The South Arkansas River is a headwater stream that begins at the Continental Divide on Monarch Pass (11,312 feet), flows generally west to east, and ends at the confluence with the main stem of the Arkansas River (7,040 feet). The highest point in the watershed is Mount Shavano (14,229 feet). The river and its tributaries drain alpine, subalpine, and montane habitats dominated by conifers. Areas adjacent to the river are dominated by deciduous species, such as cottonwoods, aspen, and willows. Distribution of plant communities is significantly influenced by elevation, aspect, soils, and climate (e.g., wind). Except in the valley bottom, soils are generally poor and derived largely from igneous and metamorphic parent material such as granite, gneiss, and schist (CNHP 2009a).

Land ownership in the upper watershed is mostly federal (Figure 1-2). These higher-elevation areas surround tributaries to the South Arkansas River and provide important wildlife habitat; use is mostly hunting and other recreational activities. In contrast, most of the land adjacent to the river within the project corridor—about 15 river miles from Chaffee County Road 225 to the confluence with the Arkansas River—is privately owned and is dominated by grazing and hay production. Major settlements include Salida and Poncha Springs; a few small areas of residential development occur along the river west of Poncha Springs. Appendix A contains aerial photographs of the project corridor.

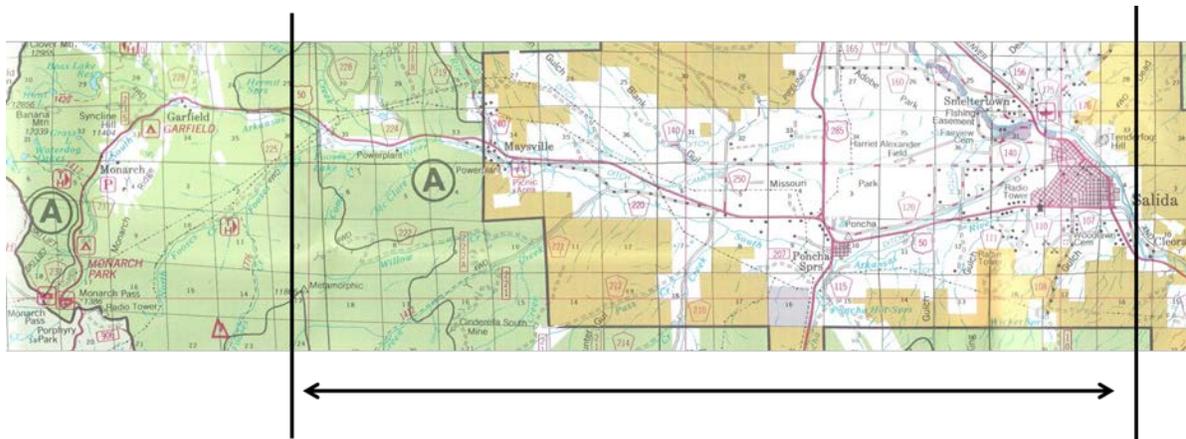


Figure 1-2. Location of the South Arkansas River project corridor
U.S. Forest Service (green), Bureau of Land Management (tan), private (white)
Background diagram from San Isabel Forest Map, U.S. Forest Service

South Arkansas River Watershed Assessment

At the west end of the watershed assessment project corridor, the South Arkansas River is a third-order stream. It becomes a fourth-order stream when joined by Little Cochetopa Creek, and a fifth-order stream at its confluence with Poncha Creek.²

The objective of the South Arkansas River watershed assessment is to characterize: (1) the natural components in the watershed; and (2) the human impacts to those components. Natural components include the physical, chemical, and biological elements of the river and adjacent streamside and upland areas. Human impacts include the direct, indirect, and cumulative effects, such as pollution (e.g., excess nutrients and sediment) and changes to the stream channel from development. Together, assessment of natural components and human impacts in the watershed establish a baseline regarding the overall health of the watershed and help determine and prioritize subsequent management options and restoration projects.

A recent report (CWCB 2010) indicated that the watershed contains several notable natural resource values (Figure 1-3), including fishing (2), special value waters (6) wetlands (7), and significant riparian and wetland plant communities (8).³ On the other hand, resource concerns previously identified in the watershed included water quality, erosion/soil conservation, noxious weeds, and adverse impacts from grazing (NRCS 2007a).

During 2012 and 2013, analysis of watershed and river conditions focused on the 15 miles of river from Chaffee County Road 225 (about 8,800 feet) to the confluence with the Arkansas River (7,040 feet)—the “project corridor” in this assessment. In-depth analysis of watershed and river conditions was concentrated in this project corridor because of limited time and resources, landownership and land use patterns in the watershed, and the generally good condition of lands outside of the project corridor. Where relevant, conditions in and impacts arising from areas outside of the project corridor were evaluated and are included in the assessment.

² Stream order is a method of classifying stream and drainage size and for placing a particular stream within the larger drainage network (Strahler 1957). Under this system, when two streams of the same order merge, the resulting stream increases in order designation by one. For instance, when two first-order streams meet, the resulting stream is a second-order stream; when two fourth-order streams meet, the result is a fifth-order stream. If a second-order stream is joined by a first-order stream, the stream below the confluence retains its second-order designation. In this assessment, streams represented by solid blue lines on USGS topographic maps (1:24,000, 7.5 minute series) were considered first-order streams.

³ Data for (2) fishing are from Colorado Parks and Wildlife and Trout Unlimited; (6) special value waters designation in the South Arkansas River watershed are those lakes and streams with in-stream flow decrees (see Section 6.0 Hydrology and Flow Regime); (7) wetlands data are drawn from National Wetlands Inventory wetland mapping (<http://www.fws.gov/wetlands/>); and (8) significant riparian and wetland plant communities designations are drawn from the Colorado Natural Heritage Program (<http://www.cnhp.colostate.edu/>).

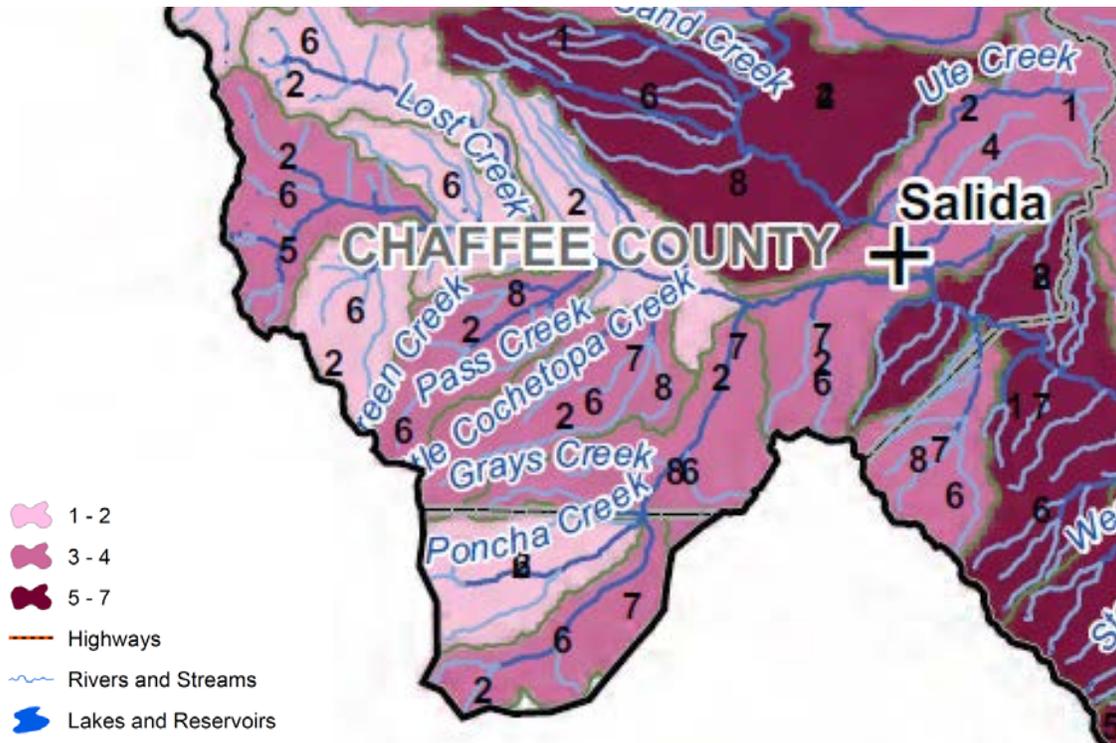


Figure 1-3. Non-consumptive use values in the South Arkansas River watershed (CWCB 2010)

The South Arkansas River watershed assessment was contracted by and completed for the Land Trust of the Upper Arkansas. Field work and report preparation were conducted during 2012 and 2013.

Eventually, all things merge into one, and a river runs through it.

MacLean (1976)