

RED ROCK RIVER DRAINAGE

PHYSICAL DESCRIPTION

The Red Rock River originates in the Centennial Valley and flows west through Upper and Lower Red Rock Lakes and then to Lima Reservoir. Lima Reservoir is a 6,800 acre irrigation storage facility built in 1902. From Lima Dam, the river flows an addition 57.4 miles in a northwesterly direction through agricultural and grazing lands before discharging into Clark Canyon Reservoir. Clark Canyon Reservoir is a 4,900 acre irrigation impoundment that was built in 1964. Prior to construction of Clark Canyon Reservoir, the Red Rock River and Horse Prairie Creek converged to form the Beaverhead River. Major tributaries of the Red Rock River include Big Sheep Creek and Horse Prairie Creek. The Red Rock River drains an area of 1,580 square miles, about half of which lies on the mountain slopes of the Continental Divide.

The Centennial Valley occurs primarily at over 6,000 ft of elevation at remains one of the least inhabited large high valleys in the state of Montana. The Centennial Mountains rise abruptly about 3,000 ft above the valley floor to form the Continental Divide and the valleys southern boundary. The northern boundary is formed by the gently rounded sagebrush covered hills of the Gravelly Range. The Valley is about 50 miles long and 7 miles wide and is drained by the Red Rock River which flows into Lima Reservoir to the west. Elevation at the headwaters of Red Rock Creek is approximately 8,100 feet and constitutes the upstream most headwaters of the Missouri River. The Red Rock leaves the valley at about 6,450 feet in elevation.

There are 23 lakes or reservoirs within the drainage, totaling 14,939 surface acres. Clark Canyon is the largest reservoir in the drainage at 4815 acres. Two large shallow lakes, Upper (893 ha) and Lower (456 ha) Red Rock lakes, dominate the valley floor in the Centennial Valley. Both lakes have uniform, shallow (< 6 ft) basins with aquatic vegetation throughout bottoms of mud, peat, and detritus. Elk Lake, which is 207 acres and about 60 feet deep, occurs in the northeast corner of the valley at 6,750 feet in elevation. Several other small lakes and reservoirs occur throughout the mountain ranges bounding the valley. Four major streams, Red Rock, Elk, Tom, and O'dell creek occur upstream of the Red Rock Lakes. The Red Rock River begins as the outlet of Lower Red Rock Lake. In addition, many small mountain and spring fed streams occur throughout the Centennial Valley.

The Centennial Valley hosts the longest winters in the nation, excluding Alaska. Snowfall averages over 138 inches annually and frost can occur in every month of the year. Annual precipitation averages around 19 inches. The timbered slopes and rocky basins of the area capture the heavy winter snows and provide a constant supply of water for the 14,000 acres of lakes, marshes, and streams within the valley.

FISHERIES MANAGEMENT

Fish communities in the Red Rock River basin downstream from Lima Reservoir are common to Southwestern Montana. These species include: rainbow trout, brown trout, brook trout, hybrid westslope cutthroat trout, westslope cutthroat trout (primarily in isolated tributaries), mountain whitefish, common carp, longnose dace, longnose sucker, Rocky Mountain sculpin, and white sucker.

Native fish species that occur in the Centennial Valley include Arctic grayling, lake trout, westslope cutthroat trout, burbot, mountain whitefish, white sucker, longnose sucker, longnose dace, and sculpin. Nonnative species include brook trout, Yellowstone cutthroat trout, rainbow trout, and Utah chub.

Fisheries in the Centennial Valley are managed primarily for conservation and recreational angling of native species. Where nonnative species occur, they are managed as recreational fisheries. The Red Rocks National Wildlife Refuge, which was established in 1935 for trumpeter swan conservation, occupies over 39,000 acres in the eastern part of the valley. Stream and lakes that occur there are co-managed with the Refuge to ensure that their fisheries and wildlife goals and mandates are met. The remainder of the valley is private, BLM, and DNRC lands, much of which is managed primarily for cattle grazing.

Fish stocking in the Red Rock River basin occurred between the 1930s and 1970s when wild trout management philosophies were instituted. Typical species stocked included cutthroat trout, rainbow trout, and brown trout. Upstream from Lima Reservoir, documentation of historical stocking is limited, showing only one stocking of rainbow trout in 1959. Yellowstone cutthroat trout were also stocked into the Red Rock River drainage upstream from Lima reservoir; however, official records are limited to stocking that occurred once in 1936 of undesignated cutthroat trout. Like many waters in Montana, complete stocking records do not exist, and stocking likely occurred frequently prior to the 1930s.

In recent years, Arctic grayling have been stocked in the Upper Red Rock River basin in support of conservation actions (including Elk Lake). Since the 1930s, Elk Lake has been stocked with rainbow trout, Yellowstone Cutthroat Trout, and most recently westslope cutthroat trout. Due to limited natural reproduction potential in Elk Lake, rainbow trout and Yellowstone cutthroat trout are likely not present at the current time.

Fishing regulations throughout the Red Rock River basin follow Central District Standard regulations with a few exceptions. In Big Sheep and Red Rock creeks, and several other smaller tributaries, cutthroat trout are included in the Combined Trout limit. Cutthroat trout are managed with catch-and-release only regulations in the remainder of the drainage. In the Red Rock River downstream from Lima Reservoir, harvest rates are reduced for Combined Trout (3 daily and in possession, only 1 over 18 inches). Arctic grayling are protected by catch-and release regulations throughout the basin, and lake trout are protected by catch-and-release regulations in Elk Lake.

The combined trout harvest limit in Clark Canyon Reservoir is three daily and in possession. Burbot harvest regulations are also exceptions to the Central District Standard regulation allowing only three burbot daily and in possession and only 1 over 28 inches. Both of these regulations are directed at maintaining high size structure to the trout and burbot populations within the reservoir.

Angling is currently not allowed in either Upper or Lower Red Rock Lakes. Otherwise, with the exception of Clark Canyon Reservoir, angler use of waters within the Red Rock River basin is low. Elk Lake has the highest angler use relative to the size of the water (207 acres), with effort approaching 2,000 angler days in 2009. Over the past decade, angling pressure on Clark Canyon Reservoir has varied from 14,452 angler days in 2003 to 37,709 angler days in 2009. Total use by non-resident anglers has varied from 7 to 42 percent of all angler days over the last decade.

HABITAT

The Red Rock River upstream from Lima Reservoir is a low gradient stream, flowing for 29.3 miles through open sagebrush country within the Centennial Valley. In the Centennial Valley, the river has a sand-gravel bottom that is covered in vast areas with accumulations of silt. The narrow riparian zone is vegetated with sedges, grasses and clumps of willow. Over half of this reach passes through parcels of public land controlled by the BLM, State of Montana, and FWS. The summer grazing of livestock is the major land use along this stretch of the Red Rock River.

Between Lima Dam and Clark Canyon Reservoir, the Red Rock River flows for 57.4 miles through privately owned valley lands, primarily used for hay production and the wintering of cattle. The river width averages about 45 feet at low flow, and the substrate is comprised of gravel-cobble with some silt deposition in the slower moving waters. The narrow riparian zone is primarily vegetated with grasses, willows, alders and cottonwoods. Approximately 35,000 acres of land is irrigated within this reach of river. Stream dewatering can be severe in this reach of the Red Rock River, with flow ceasing for several days at a time within short stretches of river. Wintering cattle have damaged the stream banks along portions of the reach, creating raw and eroding banks.

A USGS gage was operated from 1936 through 1967 at river mile 10.4. The mean annual flow for the six complete years of record (1937-1942) was 93.6 cfs. For the remaining period of operation, only non-winter flows were recorded. Non-winter monthly mean flows varied from 47.1 cfs in September to 408 cfs in May. Water to irrigate about 6,000 acres is diverted upstream from this historic gage.

FISHING ACCESS

No FWP Fishing Access Sites exist within the Red Rock River Basin, but public lands generally provide adequate access to waters within the basin.

SPECIAL MANAGEMENT ISSUES

In 2007, Montana Fish, Wildlife & Parks, and partners (BLM, USFWS, USFS, Montana Council Trout Unlimited, Montana Chapter American Fisheries Society, Yellowstone National Park, Montana Arctic Grayling Recovery Program, NRCS, and DNRC) all cosigned a Memorandum of Understanding (MOU) concerning Montana Arctic Grayling Conservation. This MOU defines responsibilities and procedures agreed to by all signatory agencies conserving conservation actions to benefit Arctic grayling in Montana.

The Red Rock River drainage is also home to several conservation populations of westslope cutthroat trout providing opportunities to conserve this native species in the drainage. The goal of cutthroat conservation work is to secure populations in habitat that is free from the threats of non-native species and much of this work will be done upstream of natural and man-made fish barriers. A cutthroat trout population is considered secure when it has a minimum population size of 2,500 fish, occupies at least 5-6 miles of stream and is free from the threats of competition and hybridization from non-native species. The long-term goal of cutthroat conservation in the Red Rock is to have 20% of the historically occupied habitat restored to cutthroat trout.

FISHERIES MANAGEMENT DIRECTION FOR RED ROCK RIVER DRAINAGE

Water	Miles/acres	Species	Origin	Management Type	Management Direction	
Elk Lake	207 acres	Lake trout	Wild	Conservation/ Special Regulations	Continue native species conservation to maintain a viable, self-sustaining population	
		Burbot	Wild	General	Continue to manage fish density through angler harvest to maintain fish growth	
		Arctic grayling	Wild/ Hatchery	Conservation	Continue native species conservation to maintain or create a viable, genetically unaltered, self-sustaining population and, secondarily, to provide angling opportunity. Augment population as necessary to maintain viability and genetic diversity.	
		Westslope cutthroat trout	Wild/ Hatchery	General	Continue to manage stocking and harvest to maintain fish growth. Augment population as necessary to maintain viability and genetic diversity.	
Habitat needs and activities: Restore and maintain suitable spawning tributary habitats.						
Red Rock Creek	26 miles	Arctic grayling	Wild	Conservation	Continue native species conservation to maintain viable, genetically unaltered, self-sustaining populations	
		Yellowstone cutthroat trout, Brook trout	Wild	Special Regulations/ General	Continue to manage to minimize potential impact on viability of Arctic grayling and secondarily for recreational angling	
Habitat needs and overwintering hab		ce delivery of fine	sediment, max	imize instream flows an	d riparian habitat quality, and ensure that adequate spawning and	
Centennial Valley Streams		Arctic grayling, Westslope cutthroat trout	Wild	Conservation	Continue native species conservation to maintain or create viable, genetically unaltered, self-sustaining populations	
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Water	Miles/acres	Species	Origin	Management Type	Management Direction	
		Hybridized	Wild	General	Continue to manage fish density through angler harvest to	
		cutthroat trout,			maintain fish growth and, in some instances, to ensure they are	
		Rainbow trout,			not limiting the viability of westslope cutthroat trout populations.	
		Brown trout,				
		Brook trout,				
		Mountain				
		whitefish				
Habitat peods and activities: Survey all tributary streams to determine present babitat quality stressers and limiting factors, and restoration petential and						

Habitat needs and activities: Survey all tributary streams to determine present habitat quality, stressors and limiting factors, and restoration potential and options. Secure and replicate extant genetically unaltered westslope cutthroat trout populations and create meta-populations of westslope cutthroat trout in accordance with existing conservation plans. Initiate localized and watershed-scale restoration projects to address stressors and limiting factors. Develop instream flow improvements and plans in areas of need.

Red Rock River	79 miles	Brown trout, Rainbow trout,	Wild	Special Regulations	Maintain present numbers and sizes.
		Mountain whitefish			
Lima Reservoir	4,422 acres	Hybridized cutthroat trout, Burbot	Wild	General	Maintain present numbers and sizes
		Arctic grayling	Wild	Conservation	Continue native species conservation to maintain viable, genetically unaltered, self-sustaining populations
Clark Canyon Reservoir	4,815 acres	Rainbow trout,	Hatchery	Put- Take/ Quality	Continue to manage stocking and harvest to support quality angling opportunity for larger fish
		Brown trout, Burbot	Wild	Special Regulations	Maintain present numbers and sizes. Consider increasing angler harvest to reduce numbers if necessary to maintain fish growth

Habitat needs and activities: Develop and implement a reservoir management plan that, in conjunction with flow management in the Beaverhead River, optimizes fisheries benefits and irrigation needs. Model relationships between fish planting success and reservoir volume, stock date and method, stocking strain, other fish abundance etc. to develop the most effective stocking strategies.

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Water	Miles/acres	Species	Origin	Management Type	Management Direction
Mountain Lakes	23 lakes and	Westslope	Wild/	Put- Take/	Continue to manage stocking and harvest to maintain fish growth
	148 acres	cutthroat trout,	Hatchery	General	
		Hybridized			
		cutthroat trout,			
		Yellowstone			
		cutthroat trout,			
		Rainbow trout,			
		Brook trout,			