

Red Rock Lakes National Wildlife Refuge
Monida Star Route, Box 15
Lima, MT 59739
406/276 3536
406/276 3538 fax
r6rw_rrl@fws.gov

Montana Relay Service
TTY: 1 800/253 4091
Voice: 1 800/253 4093

U.S. Fish & Wildlife Service
<http://www.fws.gov>

For Refuge Information
1 800/344 WILD

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Red Rock Lakes

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National Wildlife Refuge

Fish of the Centennial Valley

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The Centennial Valley is an isolated valley in southwestern Montana, nestled between the Gravelly, Snowcrest, and Centennial mountain ranges.

Centennial Valley lakes, rivers, and streams are home to a variety of fish species, both native (fish with an origin in this region) and non-native (fish that have been introduced from another location).

Dedicated to the memory of Matthew F. Clow, in appreciation for his concerns with and graduate studies on native fish conservation on this Refuge.

Management of Centennial Valley Fishes

The primary goal of past fishery management efforts in the Centennial Valley was to provide recreational opportunities for anglers. Non-native fish species were stocked into valley waters with little regard for existing native fish populations. Non-natives grew rapidly and were popular with anglers, but these fish quickly replaced native fish or displaced them to less favorable habitats.

Westslope cutthroat trout are an example of a native fish displaced by introduced non-native fish. Once found in nearly all the waters of the Centennial Valley, westslope cutthroats have been largely replaced by brook trout, Yellowstone cutthroat trout, and rainbow-cutthroat hybrids. Westslope cutthroat trout are now found in only a few high mountain streams on the south side of the valley.

Red Rock Lakes National Wildlife Refuge (NWR) encompasses a large area at the eastern end of the Centennial Valley. The Refuge's current fishery management program focuses on restoring native species. This emphasis will still provide recreational opportunities for anglers, while also helping Refuge managers understand the role of these fish within the valley ecosystem, protect their origin, and ensure their survival for future generations. Current management efforts emphasizing native fish restoration include:

- developing an Arctic grayling brood stock (captive breeding adults) on the Refuge to enhance native populations,
- assessing the size, distribution, and genetic purity of westslope cutthroat trout populations within the Centennial Valley,
- restoring native Arctic grayling and westslope cutthroat trout to Refuge waters, and
- managing habitats to benefit the native fish of the Centennial Valley.

Native Fish

Arctic Grayling

Two types of Arctic grayling exist in Montana: fluvial (river-dwelling), and adfluvial (lake-dwelling species that spawn in streams). Adfluvial grayling were originally found only in Upper and Lower Red Rock Lakes and possibly Elk Lake near the headwaters of the Red Rock-Beaverhead drainage. Although stocking programs have expanded the distribution of lake-dwelling grayling, those located within Red Rock Lakes NWR are the sole surviving, native, lake-dwelling population in the contiguous United States.

Lake-dwelling grayling spend most of their lives in lakes, but adults (3 years and older) drift upstream each spring and summer to spawn. After hatching, the young grayling swim downstream to the lakes, where they feed and rapidly grow. Historical accounts suggest that thousands of grayling swam up Red Rock Creek and other tributaries to spawn. Diminished in number, these grayling spawn mostly in Red Rock Creek. Montana State University, Montana Fish, Wildlife, and Parks, and the U.S. Fish and Wildlife Service are cooperatively studying these grayling and westslope cutthroat trout.



Arctic Grayling

Westslope Cutthroat Trout

Westslope cutthroat trout are the only trout native to the Centennial Valley and historically occupied many valley streams and lakes. Competition with the Yellowstone cutthroat trout and rainbow trout, both introduced non-native species, has contributed greatly to the decline of westslope cutthroat trout populations. Since these non-native fish readily breed with the westslope cutthroat, only a few genetically-pure populations of this species survive in Montana today. Genetically-pure populations are the only truly native westslope cutthroats.

Adult westslope cutthroat trout swim up tributary streams to spawn during spring and early summer. Fish living in higher mountain streams may reach only 10 inches, but those in warm water habitats may attain larger sizes.



Westslope Cutthroat Trout

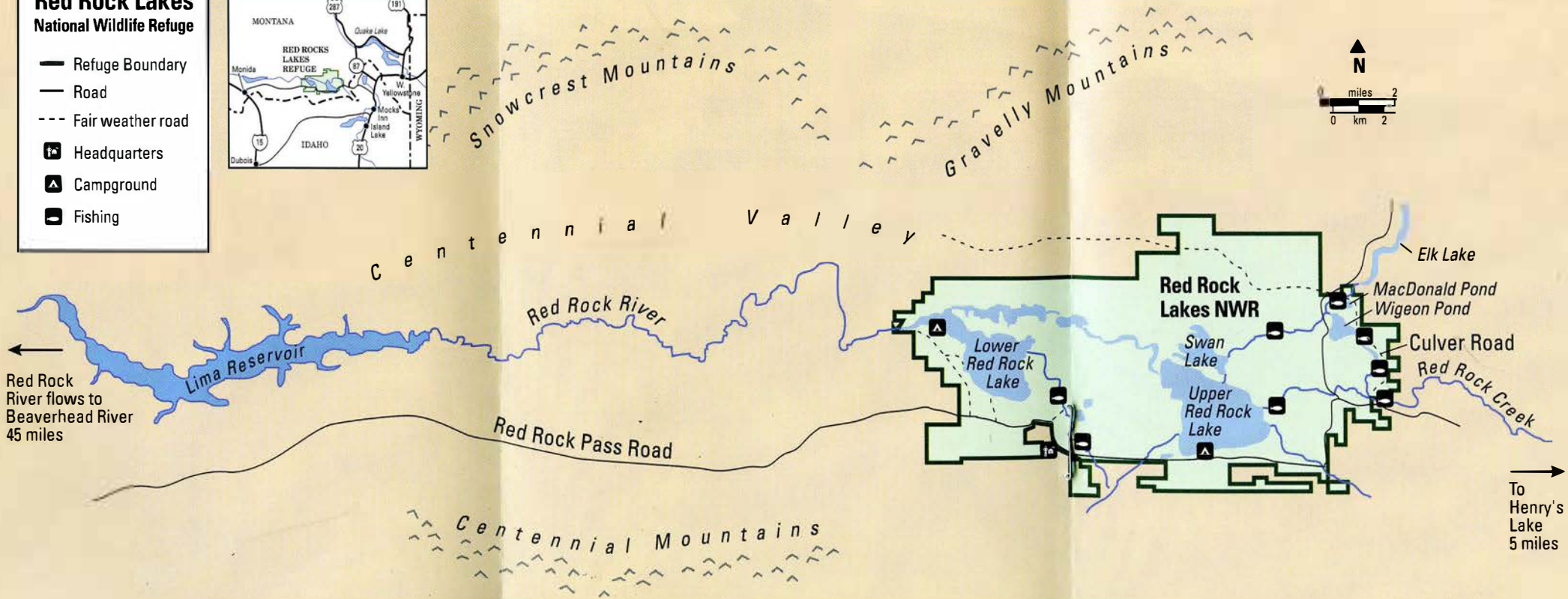


Centennial Valley Species List

Common Name	Scientific Name	Native / Non-native	Current Centennial Valley Distribution
Arctic Grayling	<i>Thymallus arcticus</i>	Native	Upper Red Rock Lake; spawn in Red Rock Creek
Westslope Cutthroat Trout	<i>Oncorhynchus clarki lewisi</i>	Native	Few isolated headwaters of valley streams
Lake Trout	<i>Salvelinus namaycush</i>	Native	Elk Lake
Burbot	<i>Lota lota</i>	Native	Upper and Lower Red Rock Lakes, Elk Lake, and Lima Reservoir
White Sucker	<i>Catostomus commersoni</i>	Native	All valley lakes
Mountain Whitefish	<i>Prosopium williamsoni</i>	Native	Upper Red Rock Lake; spawn in Red Rock Creek
Longnose Sucker	<i>Catostomus catostomus</i>	Native	Upper Red Rock Lake
Mottled Sculpin	<i>Cottus bairdi</i>	Native	Most streams and creeks in the valley
Longnose Dace	<i>Rhinichthys cataractae</i>	Native	Some valley waters
Yellowstone Cutthroat Trout	<i>Oncorhynchus clarki bouvieri</i>	Non-native	Elk Lake, Upper Red Rock Lake, and most streams in the valley
Rainbow Trout	<i>Oncorhynchus mykiss</i>	Non-native	Valley waters
Brook Trout	<i>Salvelinus fontinalis</i>	Non-native	Nearly every inhabitable lake and stream in the valley

Red Rock Lakes National Wildlife Refuge

- Refuge Boundary
- Road
- - - Fair weather road
- 🏠 Headquarters
- ⬆️ Campground
- 🎣 Fishing



Burbot

Reports indicate that burbot, also called ling, have been abundant in the Centennial Valley since the late 1800s. Burbot are the only freshwater members of the codfish family and are easily recognized by their eel-like body, large head, and prominent, single chin barbel. Burbot spawn in mid-winter. It is not known exactly where burbot spawn in this valley, but this species is known to spawn in shallow parts of lakes, beneath the ice cover, and sometimes in streams.

Burbot are often considered undesirable because they prey on other fish and have been suspected of eating more popular sport fish. However, they are increasingly being recognized for their own value as a native fish, and there is growing concern in Montana and other states regarding population declines in parts of their native range. The Refuge historically provided burbot for restoration to other locations. Burbot still thrive in Refuge waters.



Burbot

White Sucker

The white sucker may be the most common native fish in the Centennial Valley and is absent only from the smallest and highest elevation streams and lakes. Suckers have been unpopular with anglers because they are not considered good to eat and are suspected of competing with sport fish. However, suckers are important and necessary prey for many fish and fish-eating migratory birds, including pelicans, herons, ospreys, and bald eagles.

Suckers are spring spawners, often ascending streams in spectacular runs. They are fertile fish; a 20-inch female may produce 100,000 or more eggs each year.

Other Natives

Several other native fish inhabit the Refuge. The mountain whitefish, which is a member of the trout family, inhabits Red Rock Creek. The following native fish are either small and relatively inconspicuous, or are less common within the Refuge. The longnose sucker is present in Upper Red Rock Lake. This species is similar to the white sucker, but is less common in Refuge waters. Mottled sculpin probably inhabit most streams and creeks in the Centennial Valley. Longnose dace, found in lakes and streams, is the only minnow present in the Refuge.

These native fish, together with those discussed above, are necessary components of a healthy Centennial Valley ecosystem.



White Sucker

Non-Native Fish
Yellowstone
Cutthroat Trout

The historic range of the Yellowstone cutthroat trout did not include the Centennial Valley, although it was present in nearby Henry's Lake on a tributary of the Snake River drainage. This fish has been widely introduced outside its native range and was first stocked in the Red Rock Lakes by homesteaders early in the 20th century. Since then, they have been planted in Elk Lake, Wigeon Pond, and other waters. These trout spawn each spring in streams and are able to breed with westslope cutthroat and rainbow trout.

Rainbow Trout

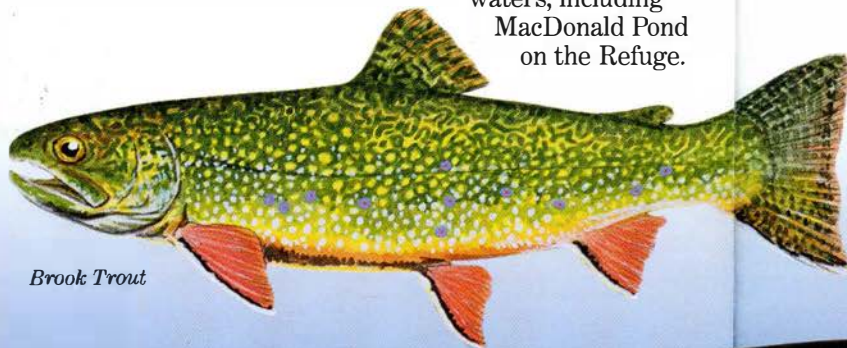
Rainbow trout, the first non-native fish stocked to the Centennial Valley, are native only to a small corner of northwest Montana. Records suggest that rainbows were introduced to the valley before the beginning of the 20th century. They have since been stocked into many valley waters, including MacDonal Pond on the Refuge.

Brook Trout

Brook trout, introduced into Montana by the late 1800s, have become established in nearly every inhabitable lake and stream in the area. Their historic range was the eastern half of North America from Georgia north to Hudson Bay, and west to the Upper Mississippi River system. Although valued as a game fish in their native waters, transplanted brook trout compete with and threaten the survival of native fish.

Brook trout are currently the most common salmonid species (salmon, trout, and char) in the Valley. They spawn in the fall in streams and creeks.

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Brook Trout



Yellowstone Cutthroat Trout



Rainbow trout