Great Rivers of the West: EXECUTIVE SUMMARY





Report prepared by Tim Palmer and Ann Vileisis



r: Richard Durnan 9 David Jensen

Minam River / Cover: Gunnison River

Letter from the President

Rivers are the great treasury of biological diversity in the western United States. As evidence mounts that climate is changing even faster than we feared, it becomes essential that we create sanctuaries on our best, most natural rivers that will harbor viable populations of at-risk species not only charismatic species like salmon, but a broad range of aquatic and terrestrial species.



That is what we do at Western Rivers Conservancy. We buy land to create sanctuaries along the most outstanding rivers in the West – places where fish, wildlife and people can flourish.

With a talented team in place, combining more than 150 years of land acquisition experience and with offices in Oregon, California, Washington and Colorado, Western Rivers Conservancy is well positioned to fulfill its mission in 11 western states.

Yet if we are to conserve the great rivers of the West, we need to know which rivers these are. To develop an inventory of the highest quality rivers, we turned to Tim Palmer—a noted author and photographer with 35 years of experience exploring hundreds of streams throughout the West.

The principal goal of the survey was to develop a list of the most outstanding natural rivers—the great rivers of the West. Criteria included free-flowing length, natural flow regime, water quality, biological health and habitat, ecological and regional diversity and recreational suitability, among other attributes. A committee of noted scientists and other experts reviewed the survey design, and state-specific experts reviewed the results for each state.

The result is a state-by-state list of more than 250 of the West's outstanding streams, some protected, some still vulnerable. *Great Rivers of the West* is a new type of inventory to serve the modern needs of river conservation—a list that Western Rivers Conservancy can use to strategically inform its work.

This is the Executive Summary of the report. Also available are the 11 state chapters, published individually or together as the full report.

With the right tools in hand, Western Rivers Conservancy is seizing once-in-a-lifetime opportunities to acquire and protect precious streamside lands on some of America's finest rivers.

This is a time when investment in conservation can yield huge dividends for the future. We invite you to join forces with us as we work to buy and conserve high-quality lands on the Great Rivers of the West. I invite you to visit our website at www.westernrivers.org, or you may contact me at sdoroff@westernrivers.org or 503-241-0151 to learn more.

For Our Rivers,

Sue Doroff President

Great Land, Great Rivers

Rivers and streams may be the most valuable of all natural resources in the western United States. They provide for a wide range of human needs—everything from drinking water and recreation to hydroelectricity and agriculture. At the same time, they offer crucial habitat and migration routes for fish and wildlife--often in otherwise arid landscapes. Even more fundamentally, they sustain vital natural processes--the hydrologic cycle, the flow of groundwater, and the growth of forests--that nourish all of life.

An extraordinary network of rivers flows from mountaintops to deserts, lowlands, and seashores. Among thousands of streams, several hundred remain as exemplary natural waterways.

Bound for the Pacific Ocean, rivers of the coastal states flow through remarkably varied terrain--from high elevations to sea level, and through drylands as well as the greatest temperate rainforests on earth. In California, the Smith River is the only sizable undammed river in the state and still supports runs of wild salmon. In the Sierra Nevada, the Kings, North Fork of the Kern, and other streams flow magnificently from alpine headwaters to lower foothill elevations. In Oregon, the Elk and Illinois are criterion natural rivers of the Pacific Coast Range, and the Rogue is one of few rivers that winds without development or roads as it cuts through these far-western mountains. In Washington, an incomparable suite of still-wild rivers drops from towering Mount Olympus, and in the glacier-carved North Cascades, the Skagit and Sauk River systems are among the finest for salmon, steelhead, and deep forest frontage with long, free-flowing mileage.

In the Rocky Mountains, a few rivers remain with exceptionally long reaches of undammed, watery pathways through the rugged terrain, and others are critical to fish and wildlife even though they are shorter. The Salmon of Idaho, perhaps America's premier river for combined length and natural mileage, runs for more than 400 miles through a geographic maze of eight major mountain ranges and still supports one of the West's most notable runs of salmon. The Selway is even wilder, pulsing down from its headwaters in the Bitterroot Mountains. Montana has the forks of the Flathead each remarkable for its clarity, beauty, and habitat of rare bull trout and wildlife including grizzly bears and wolves. The Yellowstone flows for more than 600 miles without large dams, its nature still largely intact from Rocky Mountain heights to the heart of the Great Plains. In Wyoming, rivers of the renowned Greater Yellowstone Ecosystem include outstanding tributaries to the upper Snake and its incomparable riparian corridor beneath the craggy peaks of the Tetons. In Colorado, the Yampa has one of the finest cottonwood forests in the West and still supports endangered warm-water fishes of the Colorado River basin.

The drylands and deserts also have their riverine highlights. The Green of Utah flows for nearly 400 miles with native fish habitat through spectacular canyonlands, and the Virgin River is centerpiece to Zion National Park and a greater region of redrock canyons. Nevada has mountain streams where the rare Bonneville and Lahontan cutthroat trout survive. New Mexico has the fabled Rio Grande and the still-wild upper Gila; Arizona has the biologically rich Verde and the one-and-only Grand Canyon of the Colorado River.

These are just a few of the rivers and tributaries that still flow with exceptional natural assets throughout the American West. Much of value remains, yet much of natural worth has been lost during the past two hundred years, and even some of the best-protected waterways are threatened by mismanagement, development, or pollution from near or distant sources.

To protect and restore the finest rivers that remain are goals of top importance for the future of the West, yet no recent comprehensive survey has been completed to identify the best natural rivers that remain. That is the intent of this report prepared by the Western Rivers Conservancy.

The Western Rivers Survey

Where the outstanding rivers of the western United States. Based in Portland, Oregon, but working throughout an eleven-state region, this nonprofit, private organization purchases riverfront property from willing, private landowners and assures that the land will be conserved as open space. In this way, the group has successfully protected dozens of critical riverfront tracts along streams such as the Sandy, Illinois, Chetco, and Willamette Rivers in Oregon; the Hoh River and Icicle Creek in Washington; the Snake River in Hells Canyon of Idaho and Oregon; the Sun River in Montana; the Smith River and Chico Creek in California. However, both the need and the opportunity to protect rivers far exceed the ability of this—or any organization—to accomplish all that should be done. Many rivers and their landscapes must be safeguarded so that natural ecosystems can continue to function and provide for people's needs in the future.

To clarify its mission and focus its efforts, the WRC in 2005 adopted a strategic plan to "protect outstanding river ecosystems in the western United States" and to "conserve the great rivers of the West." These are described as "healthy, natural rivers where ecological functions are still intact." The plan emphasized "whole ecosystem protection" and recognized the importance of headwaters, riparian lands, estuaries, and regions that have "a high density of highquality rivers." To plot this ambitious course, the WRC recognized the need to complete a survey to identify the highest quality rivers. Simply stated, if the organization is to save the "great rivers of the West," it needs to know which rivers these are.

To develop the survey, the WRC hired Tim Palmer—a noted author of ten books about rivers and river conservation, a planner trained in landscape architecture, a photographer, and an inveterate rivers enthusiast with thirty-five years of experience exploring hundreds of rivers throughout the West. A committee of noted river scientists and other western river experts reviewed the survey design as it was being developed, and state-specific experts reviewed the results for each state.

The survey examined rivers of Washington, Oregon, California, Idaho, Montana, Wyoming, Utah, Colorado, Nevada, Arizona, and New Mexico. For pragmatic reasons, Hawaii and Alaska were excluded.

Rather than start from scratch, the WRC survey built on past river inventories. These include significant studies following the National Wild and Scenic Rivers Act of 1968, such as the Nationwide Rivers Inventory (NRI), and a wide variety of other more recent studies, inventory lists, articles, and research papers. Typically, for each state, 15 to 20 such sources were consulted. Each of these had its own "take" on the definition of quality (e.g. native fish abundance, water quality, recreation values), and some lists addressed only specific regions within a state. None told the whole story, but in aggregate, these earlier efforts all pointed the way or offered useful evidence. If a particular river was identified as excellent by half a dozen different sources, for example, it was considered likely to be a "better" natural river than one that was identified only once. To specifically consider rivers' biological values, several experts--usually fisheries biologists or ecologists--were interviewed for each state. Their perspective and firsthand knowledge of local rivers provided essential insights for this survey's analysis.

The Great Rivers of the West does not include of all rivers deserving protection. That would be a far larger list. To state this important point another way, if a river does not appear in this report, it implies no agreement that dams, pollution, new roads, or development can occur without significant public losses in river qualities and ecosystem functions. This survey, however, is the WRC's attempt to identify the very best rivers that remain with outstanding natural values. Furthermore, restoration efforts for rivers that are not even mentioned in this survey might someday reinstate their natural qualities so that they, too, will again become "great rivers of the West."

Based on this survey, the Western Rivers Conservancy will be able to better identify prime opportunities for its involvement. However, no land will be acquired for open space simply because a river appears on our list. And in cases where open space may eventually be bought to conserve the rivers, acquisition would be only from willing sellers who voluntarily agree upon all terms. The work of the Western Rivers Conservancy and of other conservancies and land trusts simply gives property owners an opportunity to have their land protected if they want to do so.

The need for river protection is becoming more urgent as western streams are increasingly affected by pressures of a rapidly growing population; of the 10 fastest growing states in the nation on a percentage basis, 7 are in the West. Such growth intensifies needs for water and energy and spurs suburban development of farm and ranchlands. The urgency of conserving rivers is also heightened by the aggravating effects of global warming and by neglect of problems that have been accumulating for many years across the watersheds of the West. In this challenging context, it is the aim of this survey to inform the conservation of the best remaining rivers of the West.



The Great Rivers of the West

The WRC survey identified nearly 1,600 rivers that had been listed by other organizations or by agencies as especially valuable for one or more natural qualities. From this group, we selected about 380 rivers and streams (not counting a number of minor and well-protected tributaries) and listed them in an A, B, or C group as the "Great Rivers of the West." This number includes about 230 main-stem rivers or streams; the others are tributaries, though some are quite large. Short descriptions of the "A" rivers for each state follow, with lists of "B" and "C" rivers, and a map for each state.

CALIFORNIA

CALIFORNIA'S "A" RIVERS

Carson River, East Fork

The East Fork Carson has the longest, wildest, undammed section of river on the east side of the Sierra Nevada and harbors the imperiled Lahonton cutthroat trout and the Paiute cutthroat trout. Some wilderness and lightly roaded sections are popular among anglers and canoeists.

Clavey River

The Clavey is recognized as one of the top three rivers in the Sierra with a healthy suite of aquatic life (the others, Deer and Mill Creeks, are in the far northern Sierra). This wild, undammed, and undeveloped stream is one of few Sierra streams that support a full complement of native fish species with no non-native fish.

Deer Creek

With no dams, nominal development, and little watershed disturbance, Deer Creek is one of the Sierra's top three streams for aquatic life. It is a rare California waterway with healthy runs of spring chinook salmon and steelhead.

Feather River, Middle Fork

With 108 undammed miles designated in the original National Wild and Scenic Rivers Act of 1968, the Middle Fork Feather is the longest free-flowing reach of stream in the Sierra Nevada and one of the range's quintessential natural rivers.

Kern River, North Fork

Extraordinary for its wilderness, range of habitat, free-flowing length, and whitewater, the North Fork Kern makes its epic descent from the western flanks of Mount Whitney to low elevations in the Sierra foothills.

Kern River, South Fork

Occupying an unusual place in the geography of the Sierra Nevada, the South Fork Kern flows through inaccessible wild canyons with native fisheries and in lower reaches nourishes California's largest cottonwood forest where yellow-billed cuckoos and other unusual birds thrive.

Kings River, and Middle and South Forks

Truly a river of superlatives, the Kings has the greatest undammed vertical drop in America and flows through the deepest canyon. This may be the finest large-river trout fishery in California.

Salmon River with Wooley Creek

With wilderness, crystal-clear water, and steep rapids, the Salmon is one of the finest remaining salmon streams in the state and an exceptional whitewater river.

Sespe Creek

The last remaining completely undammed river in southern California, Sespe Creek is a trout stream flowing through a wilderness of rugged, chaparral-covered mountains.

Smith River and tributaries

The largest undammed river in the state, the Smith is one of the best-protected and most exceptional river systems on the Pacific Coast and still has viable runs of native salmon.

CALIFORNIA'S "B" RIVERS

- American River, North Fork
- Big Sur with North and South Forks
- Eel, Middle Fork and main stem
- Hat Creek
- Kaweah River, Marble, Middle, and South Forks
- Klamath River
- Mattole River
- McCloud River
- Merced River with South Fork Merced
- Mill Creek (Sacramento River basin)
- San Joaquin River with North, Middle, and South Forks
- Tuolumne River

CALIFORNIA'S "C" RIVERS

- Amargosa River
- American River, South Fork

- Cache Creek
- Cosumnes River
- Mokelumne River, upper North Fork
- Redwood Creek
- Rock Creek (Owens River basin)
- Sacramento River, upper and middle as two separate reaches
- Santa Margarita River
- Shasta River
- Sisquoc River
- Stanislaus River, North Fork
- Trinity River with North and South Forks and New River
- Yuba River, North and South

OREGON

OREGON'S "A" RIVERS

Elk River and North and South Forks

The Elk is the best-protected large watershed on the coast of Oregon, with the most remaining old-growth timber, and has been regarded by fisheries biologists as the finest salmon and steelhead stream of its size on the West Coast south of Canada.

Illinois River

On the West Coast, no other river compares to the Illinois as a sizable stream flowing through wilderness with superb water quality, fisheries, challenging whitewater, and geologic complexity.

Imnaha River and South Fork

With excellent water quality, no dams, and wildness, the Imnaha is an important salmon and steelhead stream of the Snake River basin and a secluded whitewater route through mountains, forests, and dry canyons.

John Day River and North Fork

As a large, relatively intact natural river system--lacking dams, remote from urbanizing pressures, and with high potential for restoration, the John Day is extraordinary in Oregon and the West. Here are found the best remaining salmon runs of the Columbia above its first dam and the longest dam-free reach of river in the entire Northwest.

Metolius River

With its fine water clarity and steady, spring-fed flow, the Metolius has an excellent resident trout fishery and a roadless reach of whitewater. Its spring flows make it unique in Oregon and the West.

Rogue River

The Rogue is extraordinary owing to its surviving salmon and steelhead runs, its wild and roadless reaches, its diversity of plantlife and wildlife, its popularity as an extended river trip, its long freeflowing mileage, and its complete crossing of the coastal mountains. No other river on the West Coast combines these qualities so well.

Sandy and Salmon Rivers

The Sandy River and its wild tributary, the Salmon River are premier streams of the Oregon Cascades owing to their dam-free length and gradient, fine fisheries including salmon and steelhead, and wildness with old-growth forests. The Sandy is the largest dam-free river entering the Columbia below its first impoundment; anadromous fish here have no dams to face as obstacles in their spawning journeys.

Smith River, North Fork (flows to California's Smith River)

One of the more extraordinary rivers protected from source to mouth, the North Fork Smith features emerald water that drops through intricate rapids and the wildness of unroaded forest.

Snake River in Hells Canyon

With its deep, wild, arid canyon, its variety of plant, animal, and fish life including spawning salmon and sturgeon, and its superlative

qualities for extended whitewater trips, this section of the Snake River is one of the outstanding reaches of large river in the West.

Umpqua River, North, and Steamboat Creek

With an excellent and popular steelhead fishery, clear water, and outstanding paddling and hiking opportunities, the North Umpqua may be the finest river of Oregon's southern Cascades.

Wenaha River

The Wenaha is perhaps the finest stream in eastern Oregon combining wildness, productive fisheries, and remote rugged character.

Willamette River, North Fork of Middle Fork

A gem of Oregon's central Cascades, this reach is among the finest in the entire Cascade Range in Oregon. From a pristine headwaters lake, it flows through old-growth forests in a region otherwise heavily logged.

OREGON'S "B" RIVERS

- Chetco River
- Coquille River, South Fork
- Cummins, Rock, and Tenmile Creeks
- Deschutes River
- Donner und Blitzen River
- John Day River, Middle Fork
- Joseph Creek
- Kilchis River
- Minam and Lostine Rivers
- Nehalem and Salmonberry Rivers
- Owyhee River and Middle and North Forks and West Little Owyhee
- Smith River, North Fork (in Umpqua River basin)
- White River

OREGON'S "C" RIVERS

- Clackamas and Roaring Rivers
- Drift Creek
- Eagle Creek (Columbia)
- French Pete and Separation Creeks
- Grande Ronde River, lower
- Hood River, East, Middle, and West Forks with Lake Branch
- McKenzie River, upper
- Nestucca River
- Siletz River
- Sycan River
- Umpqua River with South Fork
- Wassen Creek
- Whitehorse and Little Whitehorse Creeks

WASHINGTON

WASHINGTON'S "A" RIVERS

Duckabush River

Among the six stellar, major streams flowing off the east side of the Olympic Mountains, the Duckabush is one of the largest. It boasts some of the wildest headwaters and hosts some of the best remaining salmon and steelhead runs.

Hoh River

The Hoh is one of three extraordinary streams that flow down the west face of the Olympic Mountains. Running through wild terrain for nearly half its length, the river drains the entire northern half of the Mount Olympus massif and then winds through the Hoh Rainforest, which has been internationally recognized as both a Biosphere Reserve and a World Heritage Site.

Queets River

Perhaps the most-protected river in America from source to ocean, the Queets flows as a mirror image of the Hoh on the south side of the great mountain and carries more water than the nearby Hoh or Quinault. Among these three most outstanding Olympic Peninsula rivers, the Queets may be the most pristine of all.

Quinault River

The southernmost of three consecutive, outstanding rivers on the west side of the Olympics, the Quinault has all the values if the Hoh and the Queets and also flows through a sockeye salmon bearing lake--extremely rare in the coastal mountains south of Canada.

Sauk River, with North and South Forks, and White Chuck River

The Sauk system is the most extraordinary natural river complex draining the entire Cascade Range, and it ranks as one of the finest wild river systems in America. Exquisite wild headwaters including the North Fork, White Chuck, and Suiattle (covered separately) drain the Glacier Peak Wilderness. Though the main stems flow silty with glacial runoff, many clear tributaries join the river and the basin hosts a fine anadramous fishery. When combined with the Skagit, the Sauk and its North Fork form the longest undammed river reach in Washington and one of the longest on the West Coast.

Skykomish, North Fork

Exquisite clear water, boulder-riddled rapids, deeply forested shorelines, and a fine fishery make the North Fork of the Skykomish the exceptional river of Washington's central Cascades.

Stehekin River, with Bridge Creek

Though short, the Stehekin River and its tributaries are unique, flowing from high glacial peaks of the North Cascades eastward to the inlet of Lake Chelan. These streams offer an unusual recreation experience with Alaska-like remoteness, reachable only by trail or by ferryboat on the 60-mile long lake. This is one of the most remote basins east of the Cascade crest.

Suiattle River

With all the extraordinary qualities of the upper Sauk basin, the Suiattle—a major tributary—wraps north around the Cascade's iconic Glacier Peak and then flows westward to join the lower Sauk, 12 miles upstream from its confluence with the Skagit.

WASHINGTON'S "B" RIVERS

- Bogachiel, North Fork with main stem Bogachiel
- Cascade with North, Middle, and South Forks
- Dosewallips River
- Klickitat River
- Lewis River, East Fork with main stem Lewis
- Nooksack River, North Fork
- Skagit River with Illabot Creek
- White River with Napeequa Creek (Wenatchee tributaries)

WASHINGTON'S "C" RIVERS

- Carbon River
- Chewack River
- Chiwawa River
- Columbia River (Hanford reach)
- Grande Ronde River
- Hamma Hamma River
- Humptulips River with West Fork, East Fork
- Little Wenatchee River
- Soleduck River with North Fork, and Quillayute River
- Stillaguamish River, North and South Forks
- Wind River

IDAHO

IDAHO'S "A" RIVERS

Rapid River and West Fork

Bursting with clean, cold water from the isolated highcountry immediately east of Hells Canyon, the Rapid River is an excellent, small, salmon-supporting stream reached only by trail. This is the finest river in the uniquely isolated Seven Devils Mountains.

Salmon River

Flowing for 425 miles with only one low dam (a weir) at a fish hatchery near the headwaters, the Salmon is the landmark river of Idaho and a premier natural river of America. Surviving salmon and steelhead runs here are among the most critical in the Columbia basin and the West and can possibly be restored. Much of the basin is also a stronghold of the large, migrating bull trout and of native westslope cutthroat trout. Numerous tributaries deliver cold water from unroaded basins throughout central Idaho, including the largest wilderness in America outside Alaska. The Salmon, when combined with the Snake River downstream, is one of only two rivers in the West that offer uninterrupted fish habitat and an extended river expedition of more than 400 miles without dams.

Salmon River's Sawtooth Mountain tributaries

At the headwaters of the Salmon River, ten extraordinary tributaries tumble down from the jagged Sawtooth Mountains. This is one of the largest blocks of high-elevation terrain in Idaho, with more clean and cold water flowing from it than from any comparable region.

Salmon River's minor tributaries

Dozens of small tributaries are important to the health of the Salmon River and to the stocks of salmon and steelhead that persevere in this basin. A few of the most important high-quality creeks, beginning at the upper river, include Warm Springs, Slate, Squaw, Iron, Indian, Owl, Horse, Chamberlain, Sabe, and Bargamin.

Salmon River, Middle Fork and tributaries

The Middle Fork is the "crown jewel" of the Salmon River system. This 104-mile-long stream is the largest tributary, has no dams, is mostly publicly owned, and flows through a wilderness where nearly the entire watershed is protected and unpolluted. With excellent salmon habitat and a resident trout fishery, with intricate whitewater rapids, and with fine trails leading up tributary streams, the Middle Fork offers what many seasoned river runners consider the premier extended river trip in America.

Selway River and tributaries

With crystal clear water, a pristine mountain wilderness of rugged peaks, lush evergreen forests, challenging rapids, and a fine fishery of westslope cutthroat trout, wild steelhead, and reintroduced chinook salmon, the Selway is regarded by many as the ultimate wild river of the West.

Snake River in Hells Canyon

This legendary reach forms the boundary between Idaho and Oregon. See the Oregon section of this report.

Snake River, "South Fork" reach

From Palisades Dam, near the Wyoming border, to the Henrys Fork confluence, the Snake flows as a sizable river through one of the finest cottonwood forests in the West and offers outstanding habitat for native cutthroat trout and a host of wildlife.

IDAHO'S "B" RIVERS

- Bruneau River with East Fork, Sheep Creek, and Jarbidge River with its East Fork
- Clearwater River, Middle Fork with the Lochsa River, Crooked Fork, and White Sand Creek
- Clearwater River, North Fork with Kelly, Cayuse, and Weitas Creeks
- Salmon River, East Fork

Salmon River, South Fork, and the Secesh River

IDAHO'S "C" RIVERS

- Blackfoot River
- Boise River, North Fork
- Henrys Fork, Snake River
- Owyhee River with its Middle, North, and South Forks, and Deep Creek
- Pahsimeroi River
- Payette River, South Fork

MONTANA

MONTANA'S "A" RIVERS

Flathead River, main stem to Flathead Lake

The extraordinary Middle, North, and South Forks of the Flathead are among the finest river systems in Montana and in the Rocky Mountains. Though overshadowed by stellar tributaries, the upper main stem Flathead also has great value, flowing as a long, undammed extension of both the North and Middle Forks into rare, low-gradient, wetland riparian zone at Flathead Lake.

Flathead River, Middle Fork and tributaries

Running from the heart of one of America's great wilderness areas and then along the border of Glacier National Park, the Middle Fork Flathead is free of dams and diversions for its entire 101 miles.

Flathead River, North Fork and tributaries

In a semi-wild region at the border of Glacier National Park, the North Fork Flathead has exceptional natural assets, though a paved and then gravel road runs the whole way up its valley. The river supports cutthroat, bull trout, and outstanding wildlife in an excellent riparian corridor with cottonwoods, gravel bars, and mostly undeveloped shorelines.

Flathead River, South Fork and tributaries

Although a 30-mile-long reservoir impounds the South Fork Flathead in its lower reaches, the 60 miles of river upstream include superb wilderness and the finest remaining habitat for bull trout in Montana.

Yellowstone River

The 678-mile-long Yellowstone is often regarded as the longest undammed river in the U.S. outside Alaska. Although there are no storage dams on its entire length, six low diversion dams are built across the river—four of them significant barriers to fish migration and canoeists. Nevertheless, the river has exceptional qualities: pristine headwaters in Yellowstone National Park, good water quality throughout its length, a largely-intact riparian corridor with cottonwood forests that continue off-and-on for hundreds of miles, and an excellent assemblage of native fishes unlike any other in the West.

MONTANA'S "B" RIVERS

- Blackfoot River, North Fork
- Little Missouri River
- Rock Creek (tributary to lower Clark Fork)
- Yaak River

MONTANA'S "C" RIVERS

- Dearborn River
- Flathead River, lower
- Gallatin River
- Kootenai River
- Madison River
- Marias River

- Missouri River
- Poplar River, West Fork
- Powder River
- Smith River
- Stillwater River (tributary to Yellowstone) and West Fork

WYOMING

WYOMING'S "A" RIVERS

Clarks Fork of the Yellowstone River with Sunlight Creek

The Clarks Fork is one of the wildest and least accessible rivers in the U.S. outside Alaska owing to its incised, 1,200-foot deep canyon with vertical walls, no trails, and virtually unrunnable whitewater.

Falls River and Bechler River

These wild, nearly untouched rivers flow across Yellowstone National Park's high, remote, and pine-studded Pitchstone Plateau, offering outstanding wildlife and cutthroat trout habitat.

Green River, upper

One of the great arteries of the West, the Green River gets its start high in the Wind River Range, flows through a scenic valley, and spills onto undeveloped drylands. The upper reach flows in Wyoming, but the entire river runs for 730 miles from mountain source to confluence with the Colorado River in Utah (see the Utah section of this report).

Greys River

The Greys River is one of Wyoming's least developed sizeable streams, the longest river with absolutely no dams, and a stronghold

of the Snake River finespotted cutthroat trout.

Gros Ventre River with Crystal and Fish Creeks

Flowing through a mostly wild basin and drawing its waters from the Gros Ventre Range to the south and the Leidy Highlands to the north, this is one of the more significant undammed and sparsely developed rivers in the Greater Yellowstone Ecosystem.

Snake River

Like the Green River, the upper Snake River is one of the classic rivers of the West. The natural reaches that remain feature qualities considered superlative from a nationwide perspective, including wilderness headwaters, the finest large-river riparian habitat in the interior west, an exceptional native cutthroat trout fishery, and a magnificent canyon with some of the most popular whitewater in the West.

Yellowstone River with Thorofare Creek and the Lamar River

While its long flowing sweep through the Great Plains in Montana is important and exceptional, the Yellowstone's wild, national park headwaters section in Wyoming is the most outstanding reach of this 678-mile-long river.

WYOMING'S "B" RIVERS

- Buffalo Fork (of Snake River) with North Buffalo Fork and South Buffalo Fork
- Powder River with Middle, North, and South Forks
- Wind River, upper with DuNoir Creek

WYOMING'S "C" RIVERS

- Graybull and Wood Rivers
- Hoback River with Granite Creek
- La Barge Creek
- Little Snake River

- Madison River with Firehole and Gibbon Rivers
- Platte River, North, and Encampment River
- Shoshone River, South and North Forks
- Smiths Fork (of Bear River)

COLORADO

COLORADO'S "A" RIVERS

Elk River

With rare wildness for the southern Rockies, the Elk River has no dams or major highways and has robust flows from deep winter snowpacks.

Hermosa Creek

Hermosa Creek is one of the longer streams in Colorado that is mostly roadless and one of the longer entire streams in the state with no dams. Out of 144 surviving and restored populations of Colorado River cutthroat trout, Hermosa offers the longest contiguous length of stream habitat (about 28 miles) and has the most adjoining tributaries that currently provide habitat for this fish.

Little Snake River

Virtually unknown to most people beyond the local ranching area, the Little Snake is a small but long river that connects the highcountry of Mount Zirkel at the Continental Divide with the arid lowlands and canyons of the Yampa River east of Dinosaur National Monument. The river flows through extremely remote ranchland with no dams, little access, and almost no development. Some rare native fish survive here and in select tributaries.

Piney River

This beautiful mountain stream may be the longest entire river in Colorado with no dams and only nominal roads alongside. Colorado cutthroat trout survive in its headwaters.

St. Vrain Creek, North

With an undisturbed upper watershed, North St. Vrain Creek supports greenback cutthroat trout, and its basin is known for a diverse array of native plants and wildlife, rare for Colorado's Front Range.

White River and South Fork White

With wild mountain headwaters, long roadless sections, and many miles of fine cottonwood corridor through an extremely harsh desert, the White offers prime habitat for imperiled warmwater fishes of the Colorado basin.

Yampa River

The least-dammed of the major Colorado River tributaries, the Yampa flows for 170 miles from the Flat Tops Wilderness to the Colorado in Dinosaur National Monument, coursing through magnificent sandstone canyons and some of the West's finest cottonwood-box elder forests. This is one of the most important of all streams for endangered warm-water fishes in the Colorado River basin.

COLOARDO'S "B" RIVERS

- Cache La Poudre with its North and South Forks
- Green River (See Utah)
- Gunnison River
- Platte, North (See Wyoming)

COLORADO'S "C" RIVERS

- Animas River
- Arkansas River
- Big Blue Creek
- Colorado River (See Utah)
- Dolores River
- Purgatoire River
- San Miguel River

UTAH

UTAH'S "A" RIVERS

Colorado River

The Colorado River—myth-making, life-giving, rock-carving centerpiece to the entire southwestern region of the nation—flows through Utah in a series of deep and spectacular sandstone canyons with riparian corridors and habitat for endangered fish of the desert. Utah's section of the Colorado is less affected by dams than the reaches upstream or down.

Green River

Exceeding even the Colorado in grandeur, length, and wildness, the Green is the major artery of Utah. Most of its phenomenal 425mile free-flowing reach slices through high plateaus and red-rock canyonlands.

Virgin River and its tributaries

The outstanding streams of the upper Virgin River basin cut through stunning canyons in Zion National Park--sometimes called a "red-rock Yosemite." The major river system draining southwestern Utah, the Virgin and its tributaries support several imperiled fish species.

White River

This major tributary to the Green River supports endangered warm-water fishes, features an extensive cottonwood corridor along the shores, and flows undammed and nearly roadless for all of its distance in Utah. Though oil and gas development has affected the watershed, the river is still exceptional in its long free-flowing reach and its undeveloped character.

UTAH'S "B" RIVERS

- Escalante River and Boulder Creek
- Logan River

- Price River, lower
- Rock Creek and Range Creek (Desolation Canyon tributaries of the Green River)
- San Juan River
- Uinta Mountain Rivers: Uinta River, Ashley Creek, Whiterocks River, Yellowstone River, and Lake Fork River

UTAH'S "C" RIVERS

- Blacksmith Fork River and Left Hand Fork Blacksmith Fork
- Chalk Cr with South Fork and Mill Fork
- Dirty Devil River and Muddy Creek
- Dolores River
- San Rafael River

NEVADA

NEVADA'S "A" RIVERS

Baker, Lehman, and Snake Creeks, and Big Wash

These four streams flow from the Wheeler Peak area, located in Great Basin National Park. At 13,063-feet, Wheeler is the second-highest mountain in Nevada. Cold, undammed, and mostly wild, these streams drop with spectacular scenery from their highcountry sources through aspen groves and coniferous forests to the desert below. Bonneville cutthroat trout are being reintroduced.

Bruneau River

One of the longest and healthiest perennial streams in Nevada, the Bruneau drops from the Jarbidge and Independence Mountains through remote canyons with nominal roads, almost no development, and few diversions as it flows north toward the extraordinary wild desert and canyon country of southern Idaho.

Jarbidge and East Fork Jarbidge Rivers

The finest wild stream in Nevada, the East Fork Jarbidge is roadless and dam-free for about 20 miles, much of it in the Jarbidge Wilderness. The main stem flows slightly longer but has a minor road and abandoned mines in its basin. As with the upper Bruneau, the Jarbidge's Nevada headwaters are the principal source for an exquisite canyon river that lies downstream in Idaho, and it offers a long, continuous reach of aquatic habitat.

NEVADA'S "B" RIVERS

- Lamoille Creek
- Marys River
- Walker River, East

NEVADA'S "C" RIVERS

- Truckee River
- Owyhee River, South Fork

NEW MEXICO

NEW MEXICO'S "A" RIVERS

Costilla Creek with Comanche and Latir Creeks

Flowing from the crest of the Sangre de Cristo Mountains, Costilla Creek and its southern tributaries, Comanche and Latir Creeks, wind through undeveloped mountains and foothills. Costilla is among the best Rio Grande cutthroat streams in the state.

Gila River with tributaries

The Gila is the finest natural river in New Mexico. The main stem, Middle, West, and East Forks, with Black Canyon, Sapillo, and Turkey Creeks, all flow for many miles with nominal or no road intrusion much of it protected as wilderness.

NEW MEXICO'S "B" RIVERS

- Canadian River
- Cañones Creek
- San Francisco River with Tularosa River and Negrito, Whitewater, and Mule Creeks

NEW MEXICO'S "C" RIVERS

- Jemez River and East Fork with Jemez tributaries of San Antonio Creek, Rio Guadalupe, and Rio Cebolla
- Rio Brazos
- Rio Grande
- Rio Chama
- Vermejo River

ARIZONA

ARIZONA'S "A" RIVERS

Aravaipa Creek

This small waterway is widely considered the most important stream in Arizona for native fish.

Gila River

As it flows through wild canyons of eastern Arizona, the Gila continues downstream from its headwaters east of the state line (see New Mexico).

Kanab Creek

With excellent water quality, Kanab Creek flows through remote

and roadless country, starting in aspen-forest uplands and dropping to the redrock depths of the Grand Canyon. This is the second-largest tributary entering the Colorado River within the Grand Canyon.

Verde River and East Verde River, Fossil Creek, and Sycamore Canyon

The Verde River flows through headwater reaches that still harbor native fish, a wild canyon with spectacular scenery, a forest of saguaro cactus, and a riparian belt with excellent habitat for birds and other wildlife.

ARIZONA'S "B" RIVERS

- Black River with East and West Forks
- Blue River
- Little Colorado with East, South, and West Forks, and Chevelon and Clear Creeks
- Salt River with Canyon and Cherry Creeks
- San Francisco River

ARIZONA'S "C" RIVERS

- Cave Creek and its South Fork with Rucker Canyon and West Turkey Creek
- Colorado River
- San Pedro River

Assessing the Qualities of Rivers

o assess the qualities of rivers, the WRC survey used two sets of criteria. The first set were minimum requirements to be considered for a base-list of the best natural rivers. The second set addressed quality indicators—the specific values that indicated which rivers were the very best.

Minimum Criteria

Five minimum criteria were considered:

1. Free-flowing current. Free-flowing reaches of rivers are those that remain with their currents, riverbeds, shorelines, valleys, and canyons unblocked by dams. These reaches continue to benefit from floods' scouring and replenishment, they lack dams as barriers to fish migration, and they are more likely to retain ecological functions. Dams are so ubiquitous throughout the West that in many states only limited free-flowing reaches of rivers remain.

2. Reasonably natural flow regime. Natural flow regimes permit the full complement of native flora and fauna to thrive. Reaches that are de-watered or heavily diverted usually lack much of their native fish and wildlife and were not included in this survey, though rivers with minor diversions were considered. The more-natural the flow regime, the better.

3. Good water quality. High water quality is a foundation for much of the life in rivers. Heavily polluted reaches were not considered.

4. Non-urbanized shorelines. Most urban riverfronts no longer have intact corridors of riparian plant life; rather they are encased by impervious surfaces that contribute to extreme flow fluctuations and tend to aggravate problems of sedimentation and pollution. Conversely, undeveloped and undisturbed shorelines with their green band of riparian vegetation provide shade, temper flow and

temperature, filter sediments, and offer habitat for wildlife. For this reason, urban rivers—though extremely important to society— were not included in this survey of the best natural streams. But occasional small towns and rural development did not bar a river from inclusion.

5. Outstanding natural features. One or more of these should be present. These include superlative scenic, geologic, hydrologic, fish, and wildlife qualities. (Historic and cultural values were excluded because they are an indicator of human activity and do not necessarily represent natural values.)

Quality Criteria

Beyond the minimum requirements (which yielded a very long list of rivers), the following four quality criteria were used to determine which rivers best retain their natural values:

1. Biological health. In keeping with the strategic plan of the WRC, this was the most important criterion. The best rivers should have intact and functioning ecosystems, with most of the native fish and wildlife species present. This survey identified rivers with exceptional biological diversity, healthy fisheries, and natural riparian corridors.

To date, no uniform or comprehensive evaluation of the biologically healthiest rivers has ever been compiled for the West, though the Environmental Protection Agency is currently working on this goal, and some states have inventoried at least small (wadeable) streams for biological integrity. Even at state or regional levels, there is little information that indicates cumulative biological values of all rivers. To make determinations in this regard, the survey consulted with biologists working for state fish and wildlife departments, state natural heritage programs, and federal agencies including the U.S. Geological Survey, Fish and Wildlife Service, and Forest Service. We also consulted some of the Nature Conservancy's ongoing ecoregion planning programs. These local experts often provided the best judgments available regarding biological values.

In evaluating rivers' biological health, the survey considered high value fisheries as ranked by state agencies and the American Fisheries Society, valuable fisheries listed by the organization Trout Unlimited, inventories of riparian conditions, and other biological data. Rivers with intact native assemblages of fish were favored over rivers where introduced species, such as pike, brown trout, and rainbow trout have become dominant (even though these fish may be popular with many anglers).

Wildlife and plantlife are also important indicators for biological health. The survey considered keystone species such as cottonwoods, healthy populations of rare species otherwise in danger throughout much of their ranges, and other fauna and flora of special interest. Federal and state endangered and threatened species and species of special concern were also considered.

2. Wildness and roadless areas. Rivers with the least development generally rank highest in natural quality. For this reason, the survey noted rivers flowing through designated wilderness, through roadless areas, and through publicly owned land. For some states, the survey consulted comprehensive proposals for wildland protection that identified large blocks of undeveloped and roadless terrain. For some states (generally those lacking other lists indicative of wildness), we conducted our own survey of roadless conditions by consulting with DeLorme atlases.

3. Recreation suitability. Though not necessarily an indicator of natural quality, river-based recreation often depends on high natural values. Thus the survey includes recreation as an additional and related category of interest and consideration. Three river-based recreation activities that depend on natural qualities were noted: fishing, river running, and backpacking.

4. Length. Though short rivers or river segments may have great natural values, rivers and tributaries with long free-flowing reaches provide the greatest range of interconnected aquatic

habitat. Connectivity is especially important for migratory fishes that depend on a range of habitat conditions for different phases of their life history. In some cases, connectivity is also important for the transfer of nutrients within river systems and from oceans to rivers. For these reasons, the survey considered longer free-flowing reaches better and focused on rivers 25-miles or more in length but did not necessarily exclude short streams.

Threats to the qualities of a river were not considered criteria for selection. This is not a list of the "most endangered" rivers. The survey, however, does note some threats to specific rivers. Consideration of these problems may be important in conservation strategies that will follow.

In addition to these specific criteria, the survey set out to include rivers that represented the full diversity of the West's biology and terrain. Recognizing the importance of biological and natural diversity, we included at least one river from each ecoregion, based on vegetation and shown on the U.S. Forest Service's map, Ecoregions of North America.

Rating the Rivers

To analyze these criteria for rivers West-wide, data were obtained and tabulated for hundreds of rivers on a state-by-state basis. The resulting state-by-state tables became the integral foundation for evaluating and ranking waterways for the WRC survey. Each table lists a large number of high-quality rivers considered for the survey (100-300 for each state), the sources that have identified the river for its exemplary natural qualities, the types of qualities that are recognized, and the ecoregion that the river flows through.

Sources consulted include the National Wild and Scenic Rivers system, National Wild and Scenic study rivers, state-designated wild and scenic rivers, the Nationwide Rivers Inventory conducted by the National Park Service, rivers recommended for protection by the U.S. Forest Service and Bureau of Land Management, and streams identified in other regional planning efforts, such as the Columbia Interior Basin Ecosystem Management Plan. Additional sources were used for specific states, ranging from articles in the American Fisheries Society journal to state lists of the best water quality, top fisheries, and other natural features. Of comparable importance, the survey consulted on-the-ground experts from natural resource agencies and western universities to supplement and corroborate information about the biological values of the rivers.

The tables also list the final rankings given to streams on the basis of comparative analysis. In these rankings, A represents the most valuable natural rivers. B applies to rivers of very high value but that might occur in the same region as an A river and that have somewhat less quality or significance. C rivers lack the superlative qualities of A and B rivers or represent the second- or third-highest ranking stream in their particular region, or they have valuable qualities but also one or more significant problems.

In the main body of this report, state-by-state chapters include narrative sections that begin with an overview of the state's river system, one-page profiles of each A-, B, and C-listed river, and a description of notable river "regions" where clusters of high-quality streams are found. In this regard, advantages can be gained by protecting identifiable clusters of streams in order to safeguard continuous aquatic habitat, to conserve landscape-scale wildlife habitat in adjoining basins, and to minimize "edge" effects that can damage rivers even when the source of degradation might be distant.



Conclusion

From the Great Plains to the Pacific, the American West is interlaced with an extraordinary and irreplaceable collection of rivers that sustain whole ecosystems and economies across the length and breadth of eleven large states. While none of these waterways remain in completely pristine condition, many streams and portions of rivers remain with outstanding natural qualities that are essential to the fabric of life.

By considering a great body of work done by others, by interviewing experts who know the biology of western waters best, and by calling on years of our own experience, the Western Rivers Conservancy has developed this document that considers, analyzes, and rates the rivers of the West based on their natural qualities. The 380 rivers and streams that the WRC has rated in the top "A," "B," and "C" categories of this report rank among the most valuable natural resources in the West.

The WRC survey has come at an opportune time in the history of river conservation. Over the past decades, a rich accumulation of information has become available through ecological assessments of many rivers and evaluation of their natural qualities by state and federal agencies and by other researchers. However, little effort has been made to assimilate this information with a broad, West-wide perspective that puts the life or biology of the rivers first yet does not ignore other values of rivers such as geographic or recreational importance.

Further work regarding current and future threats to these rivers, plus some thoughtful reflection about opportunities to engage in fruitful conservation activity along all these rivers could provide useful supplements to this survey.

This Western Rivers Survey was initiated in the awareness that no other comprehensive evaluation of the natural qualities of western rivers has ever, to our knowledge, been completed. The immediate purpose of this report is to aid the Western Rivers Conservancy as it seeks to protect the "Great Rivers of the West" through land trust activities. We are gratified, however, to share this information with anyone who can make good use of it, and we hope that our work might benefit others who seek to protect and restore the rivers of the West.



Skagit River



Horseshoe Bend, Colorado River, Grand Canyon National Park