Great Rivers of the West:

OREGON

DAVE JENSEN

WESTERN RIVERS CONSERVANCY

Report prepared by Tim Palmer and Ann Vileisis

PETER MARBACH

Hood River. Cover: Minam 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 offices in Oregon, California, Colorado and Washington, 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. The 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 one of 11 state chapters in the report. Also available are a summary of the entire report, as well as the full report text.

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. Please visit our website at www.westernrivers.org, or you may contact me at sodoroff@westernrivers.org or 503-241-0151 to learn more.

For Our Rivers,

Sue Doroff
President

Introduction

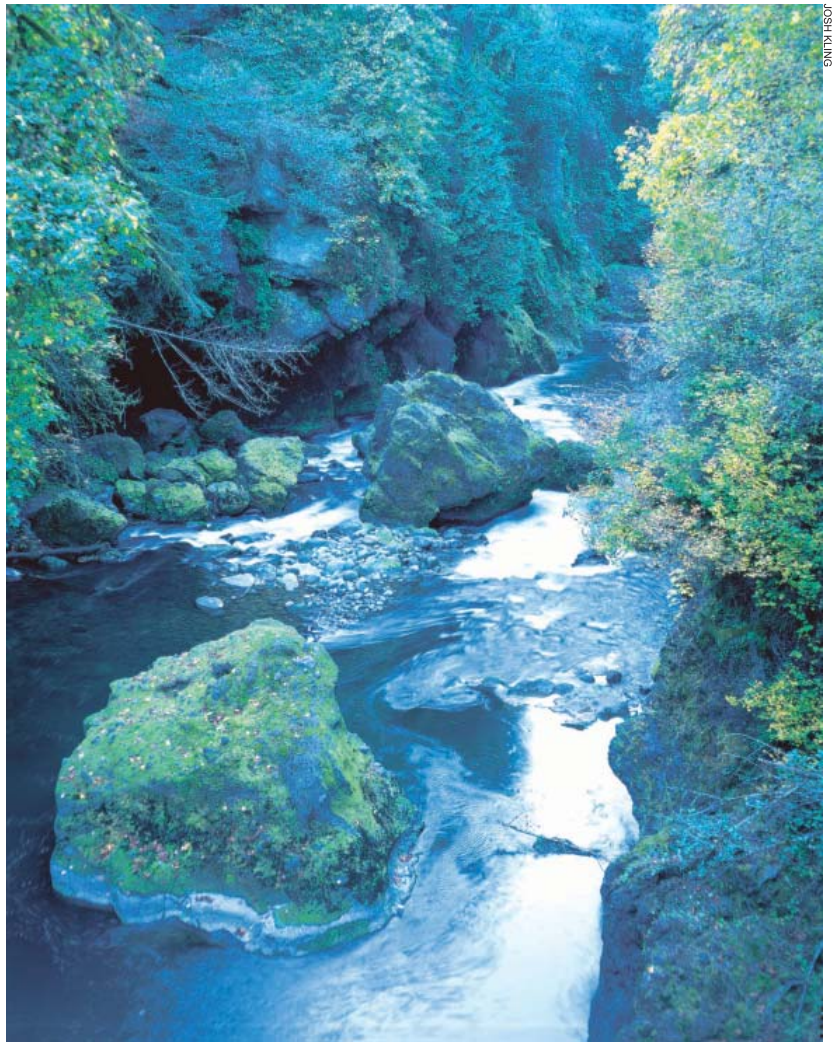
Great Land, Great Rivers

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



JOSH KLING

Sandy River

Grande Ronde River

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.

Great Rivers of the West: The Western Rivers Conservancy Survey of Eleven States

Western Rivers Conservancy (WRC) is dedicated to protecting 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 high-quality 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 in 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.

Surveying Oregon's Great Rivers

With Pacific storms delivering an abundance of rainfall on the western third of the state and also on the high mountains of the interior, with salmon still returning to natal streams, and with a great variety of landscape, Oregon is a state of magnificent and vital rivers.

The Coast Range of low, green, rain-soaked mountains runs the length of the state and gives rise to dozens of waterways; perennial streams enter the ocean nearly every one-to-five miles, including 26 major rivers. While 95 percent of the coast range has been logged, and only a few small streams remain pristine, important and exceptional coastal rivers remain. Only 3 rivers cross the whole way through the coastal mountains—the Columbia, Umpqua, and Rogue (the Siuslaw nearly does this, flowing from a low gap that

almost reaches the Willamette Valley of the interior.

Forming the northern border of western Oregon, the Columbia—fourth-largest river on the continent—flows from 7 states and British Columbia. The Willamette flows north to the Columbia, picking up small streams draining the east side of the Coast Range and—with far more water—the plentiful streams of the Cascade Mountains' west side. These include 9 major rivers and many forks and smaller streams. Water draining from the drier, east side of the Cascades flows into the Deschutes River in the north or the Klamath in the south. The eastern half of the state gets relatively little rain and snow but includes the north-flowing John Day, Umatilla, and Grande Ronde systems, the east-flowing Malheur and Owhyee Rivers in the southeast, and several landlocked basins in the south-central desert.

Most rivers in Oregon are, or were, salmon and steelhead streams, and the survival of these important fish—as well as many others—depends on having healthy rivers.

Extraordinary rivers in this state include the Rogue—one of the classic western rivers, popular for river running and fishing. The Illinois is a tributary to the Rogue and one of the wildest streams of the West Coast. The Elk is one of the finest salmon and steelhead streams of its size on the entire West Coast south of Canada. Cascade rivers including the Umpqua, Sandy, and Metolius are premier streams of the Pacific Northwest. The Deschutes, John Day, and Owyhee are excellent rivers of the drylands. At the eastern border of the state, the Snake River flows through Hells Canyon—one of the deepest in America. Other, lesser known rivers also have great value.

Much of the state is only lightly developed, and so many rivers survive in relatively good natural condition. Yet because of logging, grazing, farming, fish hatcheries, poorly executed development, and the spread of exotic species, few rivers remain in pristine condition.

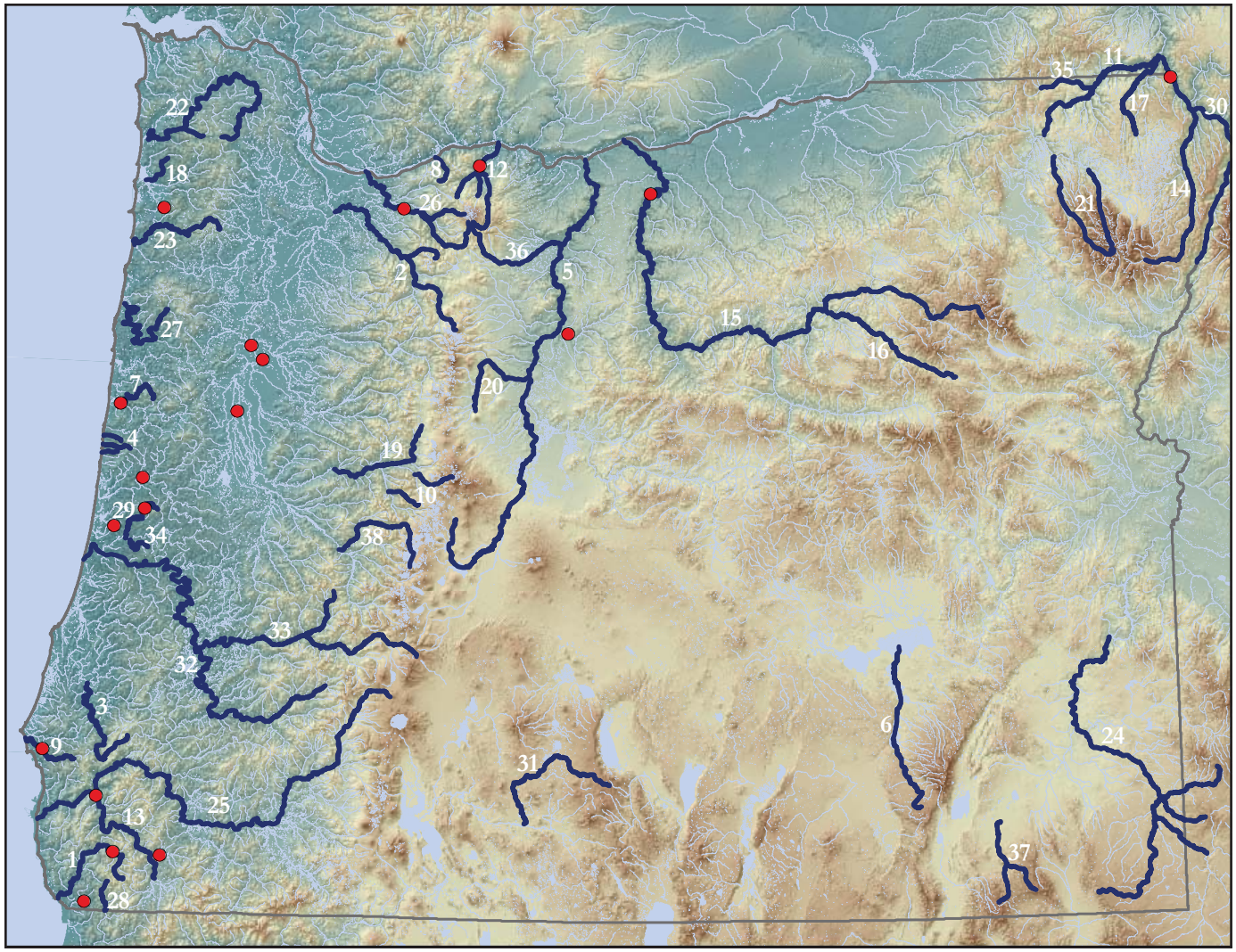
Completely intact ecosystems, without a history of logging, damming, road building, or development, are extremely rare. The small basins of Cummins Creek, Rock Creek, and French Pete Creek are among the few that meet this stringent criteria. Additional streams that are virtually unaffected by people lie completely within wilderness or roadless areas, but these tend to be small and therefore are not generally highlighted in this survey.


LOU GOLD

Illinois River

Oregon's rivers are well-represented in the National Wild and Scenic Rivers system, owing largely to an omnibus wild and scenic act in 1988 that designated 53 rivers and tributaries. This added to several earlier designations, including the Rogue—one of the initial national rivers—and the Illinois, an exceptional wild river designated in 1984. Portions of all "A" rivers identified in this survey have been designated in the National Wild and Scenic Rivers system. However, most of these rivers, except for the Metolius, Salmon, North Fork Smith, and Wenaha, also have long reaches undesignated in the Wild and Scenic system. Stewardship of privately owned riverfronts—whether in the national rivers system or not—is vital to the overall health of all these streams. ■

Oregon's Great Rivers: List



WRC Oregon Project Locations

Oregon Great Rivers

1 Chetco River
2 Clackamas and Roaring Rivers
3 Coquille River, South Fork
4 Cummins, Rock, and Tenmile Creeks
5 Deschutes River
6 Donner und Blitzen River
7 Drift Creek
8 Eagle Creek
9 Elk River with North and South Forks
10 French Pete and Separation Creeks
11 Grande Ronde River, lower
12 Hood River
13 Illinois River
14 Imnaha River and South Fork
15 John Day River and North Fork
16 John Day River, Middle Fork
17 Joseph Creek
18 Kilchis River
19 McKenzie River, upper
20 Metolius River
21 Minam and Lostine Rivers
22 Nehalem and Salmonberry Rivers
23 Nestucca River
24 Owyhee River and Middle and North Forks and West Little Owyhee
25 Rogue River
26 Sandy and Salmon Rivers
27 Siletz River
28 Smith River, North Fork (in California's Smith River basin)
29 Smith River, North Fork (in Umpqua River basin)
30 Snake River in Hells Canyon
31 Sycan River
32 Umpqua River with South Fork
33 Umpqua River, North, and Steamboat Creek
34 Wassen Creek
35 Wenaha River
36 White River
37 Whitehorse and Little Whitehorse Creeks
38 Willamette River, North Fork of Middle Fork

Oregon's Great Rivers: River Narratives

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 some fisheries biologists as the finest salmon and steelhead stream of its size on the West Coast south of Canada.

This 32-mile-long stream, including its main stem and North Fork, flows west and northwest to the Pacific Ocean near Port Orford. The basin lies at the northwestern end of the Siskiyou Mountains where they merge with the Oregon Coast Range.

The Elk River's upper forks are either roadless or only slightly affected by gravel logging roads. The upper main stem flows for 14 miles through a rugged, deeply forested canyon with intense whitewater. Then the lower river meanders for another 11 miles through a mix of forest and ranchland to a wild beach without road access at the Pacific Ocean. Here the Elk forms one of few natural estuaries and river mouths on the coast.

Wild fall chinook, coho, winter steelhead, fall coho, and sea-run cutthroat trout all thrive here, and coho densities are among the highest remaining in Oregon. A hatchery on the lower river uses only brood stock from the Elk. Bordering the river for 10 miles, the 17,300-acre Grassy Knob Wilderness is the largest designated wilderness in the Oregon Coast Range (the larger Kalmiopsis Wilderness lies in the Siskiyou Mountains). Adjoining Grassy Knob, the Copper-Salmon roadless area totals another 11,000 acres where

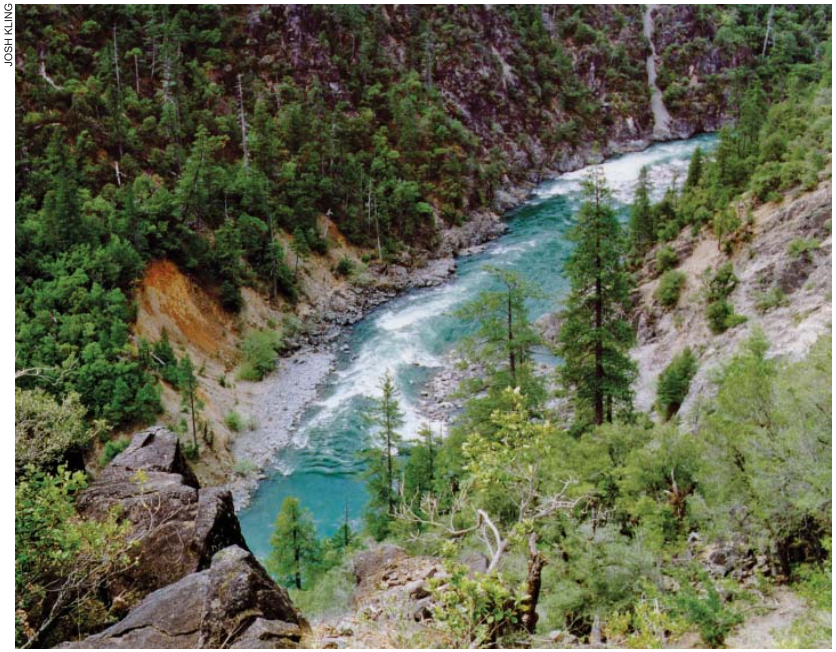
RUSS SCHNITZER / SCHNITZERPHOTO.COM

Elk River

wilderness designation is proposed and widely supported. The Elk's upper watershed is mostly public land, but a few important tracts are held by private timber companies.

A highlight of this largest block of intact forest in the Oregon Coast Range, Port Orford cedar trees reach diameters of 5 feet and thrive on floodplain soils. Old-growth Douglas-firs grow even larger, and western hemlocks also reach enormous size. At the basin's headwaters, the Iron Mountain Botanical Area includes the rare Brewer Spruce and unusual plantlife that grows in distinctive

JOSH KLING



Illinois River

nutrient-poor soils that weather from ultra-mafic rocks.

With stunning natural beauty, old-growth trees, and deep green pools of transparent water, the middle reach of the Elk offers excellent swimming and riverfront camping, and includes a challenging Class III-IV whitewater run. On the lower river, fishing for salmon and steelhead is popular, and drift boats are used.

The lower 11 miles of riverfront are mostly privately owned, though only lightly developed. Gorse—a thorny, exotic, invasive shrub—has infested much of the once-farmed or logged land along the lower 6 miles of the valley. Opportunities may be available here to protect frontage of the lower river through easements.

The Oregon Rivers Council reported that the Elk has "some of the most unique fisheries, wildlife, and botanical values in the nation." The river is part of a complex of nearby Siskiyou Mountain rivers including the Rogue, Illinois, Chetco, and South Fork Coquille, all of which inspired a Wild Rivers National Monument proposal by the Siskiyou Project in the 1990s.

With its fishery, wildness, water quality, old-growth forests, and scenery, the Elk is clearly one of the premier rivers on the West Coast south of Canada.

Illinois River

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

A major tributary to the Rogue River, the Illinois gathers small streams from the Siskiyou Mountains of far southwest Oregon, winds through a rolling plateau within the coastal range, and then plunges northwest through a 50 mile-long canyon—unique and extraordinary in the estate of American Rivers.

The wildest river on the West Coast south of Canada, the Illinois is roadless for 30 miles and nearly without road access for the entire 50 miles that it is designated in the National Wild and Scenic Rivers system. For 16 miles it penetrates the Kalmiopsis Wilderness.

The upper extension of the river is Rough and Ready Creek—a fine, wild stream in its own right with unusual plantlife. It flows for 15-roadless miles from the Siskiyou Mountain crest to its confluence with the Illinois. Only the upper basin of the Illinois is developed. A 6-mile reach passing near the town of Cave Junction is bordered by private land, used for ranching, rural home sites, and logging, as are 10-mile reaches of the East and West Forks upstream from their junction where the main stem begins.

The water of the Illinois is famous for its clarity—crystal clear in deep pools that alternate with steep, boulder-choked rapids. The river is also notorious for flash floods during winter rains; the level can go from less than 1,000 cfs to 20,000 cfs in a day or two, creating extreme hazards for unwary boaters.

An excellent refuge for Rogue basin salmon and summer steelhead, the Illinois and its tributaries are also fine trout fisheries.

TIM PALMER

Imnaha River

Twenty species of fish live here. Bald eagles, osprey, cougars, otters, and bears thrive as well. A remarkable diversity of plant species—more than 1,400—are found across climatic and geographic mixing zones and across a wide spectrum of soil types found in the distinctive geological formations of the Siskiyou Mountains.

Trails reach the river only at several points. One of the paramount whitewater paddling runs of America, the Illinois challenges boaters with a constant menu of Class IV water and a renowned Class V drop called the Green Wall. The Illinois has a number of fine tributaries, including Silver, Heather, Indigo, Lawson, Collier, Granite, and Klondike Creeks.

Centerpiece to a larger system of wild rivers, the Illinois joins the Rogue and is bordered on its west by the Chetco basin and on the south by the extraordinary Smith River of California. Silver and Indigo Creeks are exceptional tributaries with fine fisheries and wildlands.

Water diversions and land development in the upper basin pose serious threats to the health of the Illinois in its wild canyons below. Though lightly populated now, pressures for development have grown in the upper basin and will continue to increase in the future.

Imnaha River and South Fork

With excellent water quality, no dams, and wildness even in its middle reach where there is private land and nominal road access, 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.

In the northeastern corner of Oregon, the Imnaha flows east and north for 78 miles to its confluence with the Snake River in Hells Canyon, just 4 miles upstream from the mouth of the Salmon River.

The Imnaha begins as the South Fork on the flanks of Eagle Cap Peak—the summit of the Wallowa Mountains in the Eagle Cap Wilderness. Amid crags of granite, limestone, and basalt, it drops through meadows and groves of old-growth conifers. Then the extended, middle reach of the Imnaha flows directly north through a spectacular landscape of semi-arid ranchlands incised in places


PETER MARBACH

Sunrise on the lower John Day River.

with steep canyon walls. The final 5 miles drop in rocky rapids through a scenic landscape of cliffs and striking rock towers ending in the depths of Hells Canyon.

The Imnaha is an outstanding steelhead and trout stream, with native rainbow trout, bull trout, and one of the better surviving runs of chinook salmon in the Snake River watershed. Threatened throughout the Columbia basin, spring chinook still spawn here. This is the uppermost major Snake tributary still accessible to anadromous fish. The watershed is also a haven for bighorn sheep, elk, deer, bald eagles, golden eagles, peregrine falcons, martens, fishers, Canadian lynx, and wolverines.

Outstanding trails follow along the river's headwaters and also along a lower reach to its confluence with the Snake River.

About 40 percent of the river frontage is privately owned, including the entire middle reach, which is road accessible, though roads to not follow the riverfront. Landowners here have enforced private property restrictions and aggressively denied access to boaters.

The basin is one of only five on the east side of the Cascade Mountains in Oregon listed as having a high degree of aquatic integrity in the Interior Columbia Basin Ecosystem Management Project (the others are the adjacent Minam, Wallowa, Wenaha, and Joseph Creek basins). The Imnaha is also one of few rivers nationwide included in the National Wild and Scenic Rivers system from source to mouth, and it is perhaps the most splendid river in the system with so much private land.

The Imnaha basin borders the spectacular Hells Canyon to the east and the choice complex of the Joseph Creek and the Lostine, Minam, Wallowa, Wenaha, and lower Grande Ronde Rivers to the west and north. Except for the Grande Ronde, the Imnaha is the largest among this nexus of superb streams in the northeastern corner of Oregon.

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 the best remaining salmon runs of the Columbia above its first dam and the longest dam-free reach of river in the entire Northwest.

This large river system drains much of north-central Oregon. Snowmelt collected from the Blue and Strawberry Mountains flows into three major branches. The North Fork flows for 95 miles, beginning in the Blue Mountains' North Fork Wilderness and then passing through rugged basalt canyons and fine stands of ponderosa pine and Douglas-fir before entering juniper and sage drylands. It picks up the Middle Fork, which flows 54 miles from its own Blue Mountain headwaters. Downstream another 30 miles, the North Fork carries twice the volume of the main stem where the two join at Kimberly.

The North Fork supports the largest population of spring chinook salmon and summer steelhead in the Columbia River system above Bonneville Dam. A trail follows much of the river, and difficult rapids are run by kayakers in the spring.

The upper main stem begins in Dixie Pass in the Blue Mountains, collects tributaries from the Strawberry Mountain Wilderness, and then is joined by the 48-mile-long South Fork.

The main stem is a National Wild and Scenic River for 148 miles from Service Creek to the backwaters of the Columbia, as is the North Fork for 54 miles and the South Fork for 47 miles. State scenic waterway designation also protects most of the main stem and its three forks. The main stem is about 44 percent public land while the North Fork is 28 percent public and the South Fork is 41 percent public.

The entire system is virtually dam-free, flooded only in its lowest 12 miles by backwaters of The Dalles Dam on the Columbia. With a free-flowing length of 252 miles from the North Fork headwaters to the Columbia backwater, this is the longest free-flowing reach of river in the Northwest and among the dozen longest dam-free reaches west of the Great Plains. This river offers one of the longest canoeing trips in the West and an easy rafting expedition until the water level drops in May or June.

Metolius River

CRAIG OPFER

The main stem curves through desert canyons, 1,000 feet deep, interspersed with semi-arid ranchlands, and it flows through the John Day Fossil Beds National Monument—a site of unique geologic and paleontologic value. The river is one of the longest wild anadromous streams in the Columbia system and hosts the largest remaining wild chinook runs in northeast Oregon. Introduced bass have exploded in population and are popular among anglers. Here and along the major forks, bald eagles, peregrine falcons, bighorn sheep, cougars, bobcats, and other wildlife thrive. The main stem flows through three wilderness-study areas administered by the Bureau of Land Management.

The river has been heavily affected by diversions for ranchland along most of its length, by grazing almost throughout the basin, by timber harvest through most of the headwaters, by gold dredging, and by Columbia River dams. However, with only two dams downstream—compared to eight affecting the Grande Ronde of northeast Oregon and Salmon River of Idaho—the salmon and steelhead of the John Day have relatively few obstacles to overcome, and are surviving.

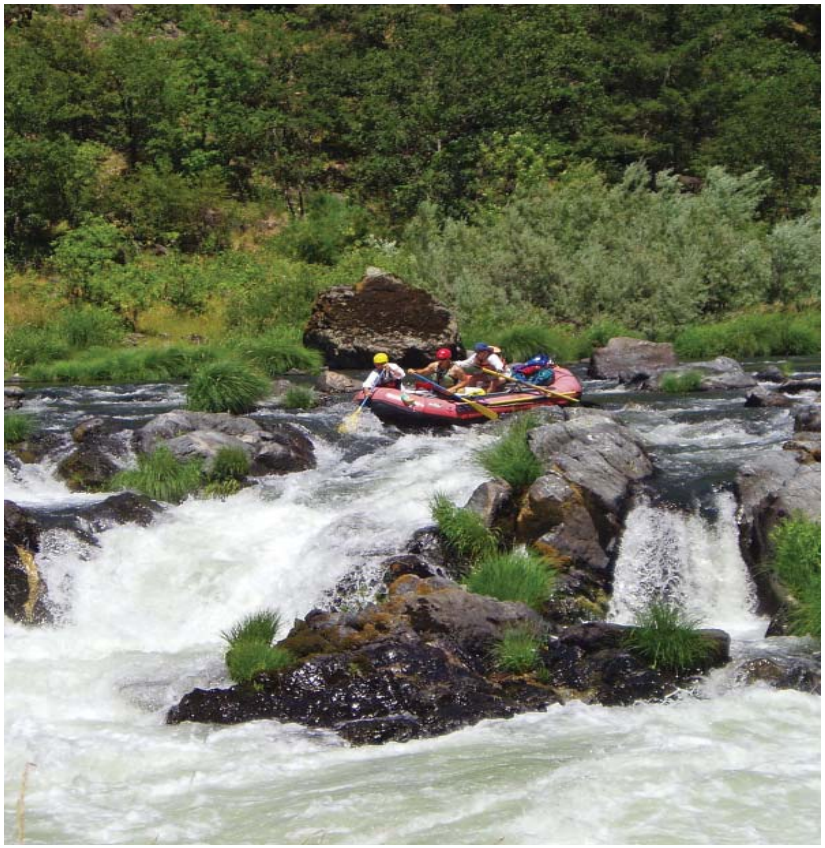
Likewise, though grazing is present throughout the basin, the steep topography and remoteness of the canyons have protected much larger areas of native grasslands than are found throughout most of the Columbia basin. Unlike along the Deschutes River, urban development pressures have been minimal, and will not likely grow very much.

Within this extensive river system, the North Fork includes the best remaining anadromous fish habitat. The South Fork has been more degraded. The main stem is unique in the West and critical to fish migration routes to the upper forks.

Metolius River

With its extraordinary water clarity and steady, spring-fed flow,

MAT MILLENBACH



Rogue River

the Metolius has an excellent resident trout fishery, a roadless reach of whitewater, and is unique in Oregon and the West.

In the central Cascades of Oregon, the Metolius flows north and east from springs at the bases of Mount Jefferson and Three Fingered Jack to the backwaters of Round Butte Dam on the Deschutes River.

The Metolius literally springs out of the ground at enormous groundwater discharges that collect snowmelt of the Cascade peaks through underground conduits in the basaltic rock. Upper reaches flow gently and are heavily used for recreation while lower reaches tumble through a wild, swift-water canyon with no road access.

Because it is almost entirely springfed, the river does not deviate from a 45-54 degree temperature—very cold—and it flows at a nearly constant rate year-round, producing one of the steadiest hydrographs known on a sizable river. Water quality is outstanding, with aquamarine pools and white rapids.

A legendary trout-fishing river, the Metolius supports native rainbow and bull trout as well as introduced brown and brook trout. The state set aside one section for fly-fishing only in 1939—one of the earliest protections of its type. The river is unusual in having kokanee salmon that swim up from Billy Chinook Reservoir formed by Round Butte Dam. Beavers, otters, goshawks, and bald eagles are also residents.

Anadromous fish runs were blocked when Round Butte Dam was built—over state objections—downstream on the Deschutes River. Current plans to build effective fish passage around the dam may bring anadromous fish back to the Metolius basin. Waters here may be too cold to offer prime chinook salmon habitat, but it is possible that the kokanee population will evolve into a sockeye salmon fishery.

Trails follow both the upper and lower river reaches. Below the road-accessible upper reach, the lower river is a premier and difficult whitewater paddling run.

Most of the upper river is public land, with six resorts and twelve campgrounds along the shores. On the roadless, lower river, the south shore is Deschutes National Forest and the north shore is the Warm Springs Indian Reservation. A large Metolius tributary—the Whitewater River—flows entirely within the Reservation and joins the Metolius 5 miles above the reservoir.

Most of the river is in the National Wild and Scenic Rivers system, and the upper 14 miles are in the State Scenic Waterways program.

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 of four days or

more, its long free-flowing mileage, and its complete crossing of the coastal mountains. No other river on the West Coast combines these qualities so well.

This 210-mile-long river begins in the southern Oregon Cascades north of Crater Lake and flows by a circuitous route westward to the Pacific Ocean at Gold Beach. It is one of only 3 rivers in Oregon and 6 on the entire U. S. West Coast that begins in the interior mountains and transects the entire Coast Range (others are the Chehalis, Columbia, Umpqua, Klamath, and Pit-Sacramento). The only rivers that dramatically cut the whole way through rugged sections of the Coast Range are the Umpqua, Rogue, and Klamath, and among these, the Rogue has by far the longest roadless reach.

The river begins at Boundary Springs—thought to be the outflow of Crater Lake—and drops 43 miles through steep rapids, enchanting pools, and thin strips of old-growth forest backed by heavily logged tracts to the flatwater of Lost Creek Dam. At one point the entire river drops into underground lava tubes, then boils up to the surface 200 feet away. Trails follow much of this river course, and 99 percent of the upper corridor is publicly owned.

Below Lost Creek Dam, the middle river runs for 55 miles through the Rogue River Valley, passing near Medford and through Grants Pass. Most of this reach is private land, and many roads lie near the river, including a 12-mile section of Interstate 5. Gold Ray Dam—a small, antiquated, unused hydropower site—blocks the river northwest of Medford, followed by Powerhoue Dam—an old, low structure just upstream from Gold Hill. The last dam on the river is 3 miles above Grants Pass at Savage Rapids. No longer needed for irrigation, and blocking the migration of salmon, the dam is slated for removal.

From Savage Rapids Dam to the Pacific, the Rogue runs dam-free for 113 miles—the fifth longest free-flowing reach of river in Oregon and the Northwest. Without Savage Rapids and the other antiquated dams, the free-flowing Rogue would total 153 miles from Lost Creek Dam to the Pacific.

Downstream from Grants Pass the river begins to cut through the Oregon Coast Range, and below Grave Creek, a 35-mile roadless section is widely regarded as one of America's premier wild river reaches and most popular whitewater journeys.

At Foster Bar the canyon opens up, and in the final 10 miles below Lobster Creek the river riffles through a broad coastal valley and enters tidal water about 5 miles upstream from the Pacific.

Historically the Rogue has been a world-renowned salmon and steelhead fishery, though the runs are now depressed because of the dams, spawning habitat loss owing to logging, and other problems. Lost Creek Dam has harmed the river by eliminating flood flows and altering the temperature regime in the water below the dam. Commercial jet boat use is heavy from Grants Pass to Gallice—above the wild reach—and for 45 miles from Blossom Bar Rapid (the terminus of the "wild" designation) to the Pacific.

Anglers still flock to the Rogue by the thousands in salmon and steelhead seasons, and Rainie Falls, below Grave Creek, is one of few places in the West where salmon can still be seen jumping over waterfalls on their spawning journeys. Fall chinook remain healthy, but the Rogue's spring chinook and summer steelhead are in jeopardy and the coho are listed as threatened. The river is also one of only three on the West Coast with green sturgeon (others are the Columbia and Sacramento).

The Rogue's route through the Coast Range offers one of the greatest cross-sections of plantlife on the Pacific coast. Douglas-fir intermingle with ponderosa pine, sugar pine, white fir, incense cedar, red cedar, Port Orford cedar, Pacific yew, Oregon white oak, California black oak, Pacific madrone, Oregon myrtle, big leaf maple, and the rare Brewer spruce on high ridges.

The Rogue's upper 40 miles have been designated as a National Wild and Scenic River, and the 85-mile reach from the mouth of the Applegate River (below Grants Pass) to Lobster Creek was among the original 12 rivers protected in the national system. Both sections are likewise protected in the Oregon State Scenic Waterways system.

To discourage logging proposals on BLM land, American Rivers and other groups in 2007 proposed adding portions of 16 tributary streams to the Rogue in the National Wild and Scenic Rivers system. These include Anna, Big Windy, Dulog, Grave, Hewitt, Howard,

Kelsey, Jenny, Little Windy, Mule, Missouri, Montgomery, Quartz, Rum, Whiskey, and Wildcat Creeks.

Between the protected upper and lower Rogue reaches lies the heavily populated and rapidly urbanizing Rogue Valley, including the cities of Ashland, Medford, and Grants Pass. Private development of land—especially river frontage—throughout the middle section of the river will pose threats to the Rogue's water quality and flow regime. Unlike many other rivers, the wildest sections of this river lie not upstream, but downstream from urbanizing areas.

Sandy and Salmon Rivers

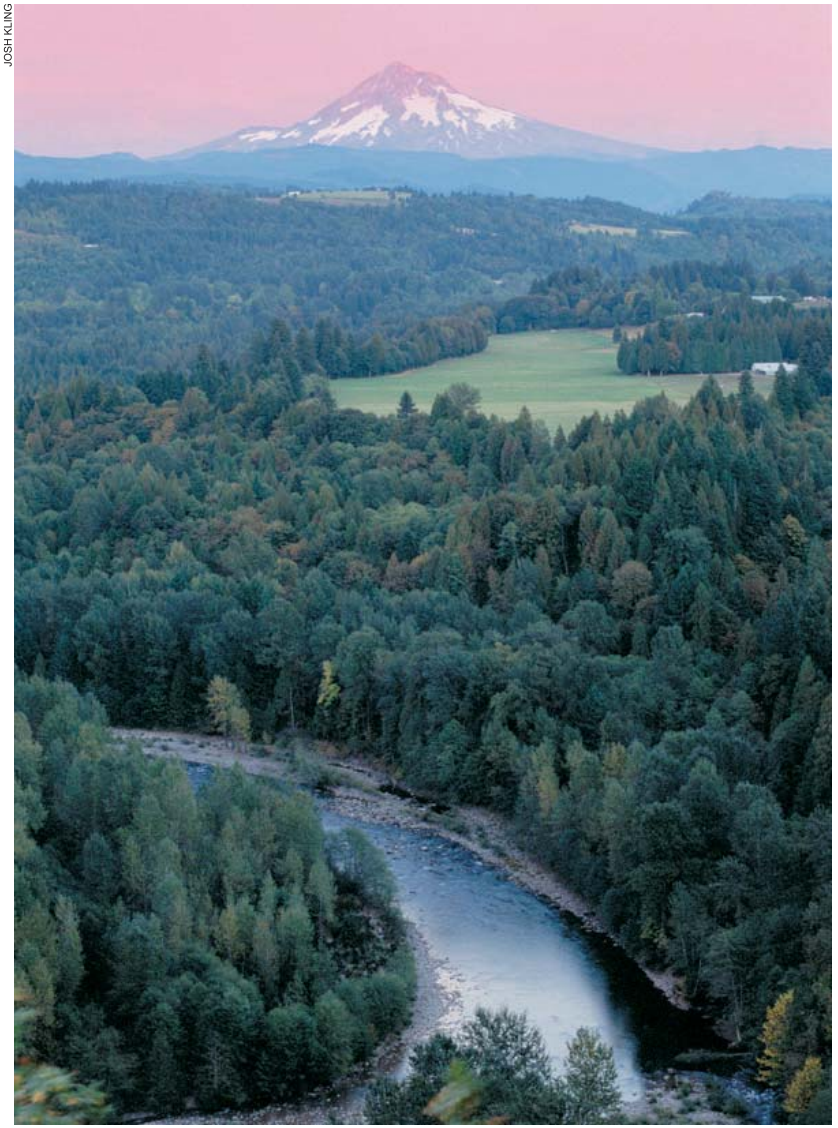
The Sandy River and its wild tributary, the Salmon River are premier streams of the Oregon Cascades owing to their dam-free length and gradient, fine fisheries including salmon and steelhead, wildness with old-growth forests, and its suitability for recreational use. The Sandy is the largest dam-free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

The 75-mile-long Sandy and its tributary, the 34-mile-long Salmon River, both begin at the edges of glaciers on Mount Hood and flow northwest, entering the Columbia just east of the Portland urban area.

Starting at the Sandy Glacier, the Sandy River flows 5 miles through meadows, woodlands, and a rocky volcanic landscape of the Mount Hood Wilderness. In its mid-section, the river drops through wooded gorges with both intense whitewater and gentle rapids. The lower river is a miniature of the Columbia Gorge with deep forests, rocky outcrops, and nearby development.

Following a similar but wilder course, the Salmon River runs from the Palmer Glacier on the south flank of Mount Hood and flows 8 miles through the Salmon-Huckleberry Wilderness, then onward through old-growth and second-growth forests to its confluence with the Sandy at Brightwood. With most of its frontage and watershed roadless, the Salmon was called an "Oregon work of art" by the Oregon Rivers Council. Flowing dam-free from source to sea level, the stream is an exquisite example of a free-flowing and mostly-wild river extending from a high elevation at 6,200 feet in the Cascades to low elevation (300 feet) at its confluence with the Sandy

JOSH KLING



Sandy River

and then continuing onward, undammed to the tidal Columbia.

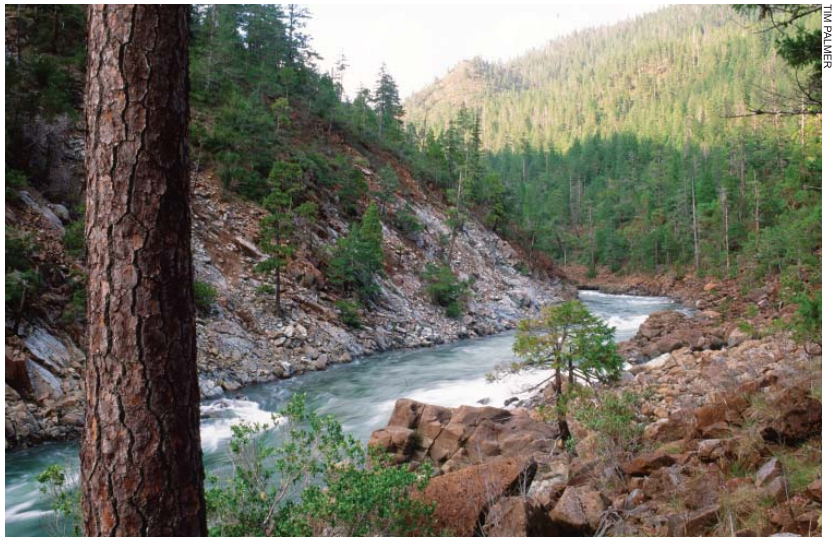
Both rivers flow through forests of old-growth Douglas-fir, noble fir, and western hemlock. Wooded habitat shelters spotted owls, otters, minks, martens, cougar, Roosevelt elk, and bald eagles. The Sandy is home to three species of endangered amphibians and three rare plants: the nodding onion, Columbia River willow, and giant trillium.

Flowing into the Columbia downstream of the lowest mainstem dam (Bonneville), these rivers offer relatively unimpeded spawning routes for salmon and steelhead. The Sandy is one of the state's top producers of winter and summer steelhead and also supports spring chinook, coho, and smelt, and also native rainbow and cutthroat trout in the upper river. The excellent habitat and wildness of the Salmon River supports the best anadromous fishery in the Sandy basin, hosting steelhead, coho, and chinook in lower reaches. In addition, a fine headwaters population of cutthroat trout thrive in a reach lying above six waterfalls—one of them 75 feet high—which stop migrating fish.

Lying only an hour's drive from more than 1 million people in the Portland metropolitan area, the Salmon and Sandy are among the most important recreational rivers in Oregon. Trails along both rivers see heavy use. Anglers flock to both rivers, and especially the lower Sandy—popular among fishermen in drift boats and onshore alike. River runners enjoy Class I to III segments on the lower river and an extraordinary Class IV whitewater run on the middle Sandy.

Public land comprises 82 percent of the Salmon's shorelines, with the private land occurring in a 7-mile reach as it nears Highway 26. The lower Sandy flows mainly through private land interspersed with several state and county parks.

In a model river restoration project, the Western Rivers Conservancy has acquired several important tracts in the middle gorges of the Sandy and helped to arrange for the 2007 dismantling of Marmot Dam—the only dam that previously blocked the main stem's flow (2 large dams impound Bull Run—a major Sandy tributary to the north). A diversion related to Marmot Dam, which had de-watered part of the river for decades, has been discontinued.


TIM PALMER

North Fork of the California Smith River in Oregon.

Twenty-five miles of the Sandy are designated in the National Wild and Scenic River system in two sections, and 12 miles are protected in the State Scenic Waterways system. The entire Salmon, from headwaters to source, is protected as a National Wild and Scenic River. Homesites have proliferated along the lower Sandy, and intense urbanizing pressures along lower reaches pose continuing threats to this outstanding river system.

Smith River, North Fork (southern Oregon reach in basin of 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.

The river flows 13 miles southward from its source to the California border (the entire North Fork runs 27 miles to its confluence with the South Fork Smith). Beginning beneath Chetco Peak, half the Oregon reach lies in the Kalmiopsis Wilderness. Douglas-firs and mixed conifers crowd the steep canyon. Water quality is renowned,

and the river supports strong runs of chinook, coho, steelhead, and sea-run cutthroat trout. A critical spawning area for the famous main stem Smith River, the North Fork is closed to fishing.

The isolated basin includes peridotite soils and supports a unique mix of rare and endemic plant species. At least 7 sensitive species and 10 species on a review or "watch" list for threatened status occur along one tributary alone—Lemmingsworth Gulch. Two sensitive plants, the California ladyslipper and harvest brodiaea, are found near the river.

Nearly all of the riverfront is roadless, with gravel roads reaching the North Fork at only three places. No trails parallel the river. From Rowdy Creek Road downstream for 13 miles, the North Fork offers one of the most extraordinary Class IV whitewater rivers in the West, comparable to the Illinois River, and runnable only on high water in winter and spring.

This highly protected corridor flows entirely through Siskiyou National Forest in Oregon. The entire stream is designated in the National Wild and Scenic Rivers system, and the California portion is protected as part of the Smith River National Recreation Area. A tract of private land straddles the river just south of the Oregon border, and the left shore at the confluence with the Middle Fork in California is privately owned.

The entire Smith system is featured as one of the outstanding rivers of the West in the California section of this report.

Snake River in Hells Canyon

With its deep, wild, arid canyon, its variety of plant, animal, and fish life including imperiled 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.

For more than 250 miles the Snake River forms the border between Oregon and Idaho (the entire river is 1,040 miles long and by volume ranks as the twelfth-largest river in America). Most of the Oregon length is impounded by the Hells Canyon complex of 3 dams, or it is heavily polluted by agricultural wastewater in the reach upstream

NORMAN EDER

Hells Canyon

from the dams. However, 70 miles remain free-flowing through the lower half of Hells Canyon, and have exceptional qualities. Counting downstream mileage along the border of Washington, the Snake flows free for 100 miles in this reach.

Here the river has carved the second-deepest canyon in America (only the Kings of the Sierra Nevada is deeper), and the deepest canyon carved by a large river. Massive in scale, the Snake in Hells Canyon averages 13,000 cfs even during the low-water month of August. Steep volcanic slopes rise from 5,000 to 8,000 feet above the water. Upper reaches of the canyon, immediately downstream from Hells Canyon Dam, include a blend of ponderosa pine, fir, and grasslands; lower sections are rocky and arid.

An intricately varied fishery includes bass, trout, surviving runs of fall chinook salmon and steelhead that still migrate to the mouths of the Grande Ronde, Salmon, and Imnaha Rives. Forming the migration path for salmon and steelhead coming up the Columbia-Snake-Salmon Rivers system, the lower end of Hells Canyon is critical to these endangered and imperiled anadromous runs that were once among the finest in the world. Salmon in this system

must now overcome 4 dams on the Columbia and 4 dams on the lower Snake before reaching the hospitable Snake River tributaries in Hells Canyon. A critically threatened species, the Snake River fall chinook spawn directly in the river in the free-flowing reach below Hells Canyon Dam. This is also one of the best remaining reaches of river supporting rare white sturgeon—the largest freshwater fish in North America.

With its classic high-volume whitewater, the Snake attracts rafters, drift boaters, and kayakers from all over the nation for extended river trips of 3-7 days. It is also popular among jet boaters, unrestricted for many years even after non-motorized use had been limited by quotas. This has resulted in severe conflicts between the two groups. Trails follow portions of the canyon.

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.

From the Cascade crest north of Mount Thielsen, the 106-mile-long North Umpqua flows west to its confluence with the South Umpqua near Roseburg. It offers fishery, scenic, geologic, and recreational values.

The upper river system is dammed 8 times, sections are diverted for hydroelectric power, and a hatchery at Rock Creek affects native fish. But then, below Eagle Rock, west of Toketee Falls, the river flows through magnificent whitewater rapids and deep green pools to Idleyld Park. Highway 138 parallels the river for this entire middle section. With only intermittent road access, the lower river enters rolling foothills of the Cascades and flows through pools and occasional rapids. A low dam for recreational flatwater blocks the North Umpqua at Winchester, and the final 6 mile reach flows through a widening floodplain of cottonwood-lined bottomlands until it meets the main stem Umpqua, which runs for another 113 dam-free miles to the Pacific.

Internationally known for its fishery, the summer steelhead run on the North Umpqua has been one of the best on the West Coast. Chinook, coho, rainbow trout, and exotic brown trout also do well, and the river retains its full compliment of native fish. The


TIM PALMER

North Umpqua River

combination of large steelhead and steep banks make angling a challenge. The North Umpqua is also a favorite of whitewater boaters because it is one of few Cascade streams floatable throughout the summer. Though its corridor is also shared with a major highway, a hiking trail parallels the river for 79 miles through National Forest land, making it one of the longest riverfront trails in Oregon and the West. The deep green water, rock-filled rapids, and heavily forested shorelines are uncommon along a river with such ready road access. Aside from the riverfront and the Boulder Creek Wilderness Area (northwest of Toketee Falls), much of the basin has been heavily logged.

From the powerhouse below Toketee Falls to Rock Creek (upstream from Idleyld Park), 34 miles of the North Umpqua is designated in the National Wild and Scenic Rivers System. About 94 percent of the basin in this reach is National Forest land. Most of the riverfront downstream from Idleyld is privately owned.

Steamboat Creek is a major tributary flowing for 27 miles and entering the North Umpqua from the north at Steamboat. With the upper North Umpqua being dammed and diverted for hydroelectric power, the North Umpqua-Steamboat combination effectively becomes the longest free-flowing reach of this river. An extremely important steelhead nursery, accounting for half the spawning in the entire North Umpqua, this watershed is all in National Forest ownership. It is heavily logged but is now recovering with old-growth reserves. Another significant tributary downstream from the North Umpqua's hydropower dams is the 8-mile-long Boulder Creek, which flows from source to nearly its mouth through the Boulder Creek Wilderness.

Though the upper Rogue is more spectacular in its scenery, its geology, and its dam-free nature, the North Umpqua excels as an outstanding fishery and recreational river within the southern Cascades region.

Wenaha River

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

TIM PALMER

North Fork of the Middle Fork of the Willamette River

character.

In far northeastern Oregon, the 33-mile-long Wenaha River plus its South Fork flow eastward through the Blue Mountains to the Grande Ronde River at Troy. One of the wildest and least accessible rivers in the Northwest, the Wenaha runs for all but its last 6 miles through the Wenaha-Tucannon Wilderness. The stream can be reached only by foot or horse at several trail crossings.

Prime habitat for bighorn sheep, bald eagles in winter, whitetail deer, Rocky Mountain elk, black bears, bobcats, cougars, and beavers, the river also offers some of Oregon's finest native rainbow and bull trout habitat. It provides much of the remaining salmon and steelhead spawning areas in the Grande Ronde basin. Along with the Minam River, the Weneha is considered the only part of the expansive Grande Ronde basin that remains pristine in character. Its cool water helps to moderate high temperatures in the Grande Ronde River that result from upstream grazing and logging along the heavily altered main-stem. Both the Interior Columbia Basin Ecosystem Management Project and Trout Unlimited list this river as one of few premier fisheries in eastern Oregon.

The entire main stem of 22 miles is designated in the National Wild and Scenic Rivers system, and 95 percent of the river frontage—all but the lowest portion—is in public ownership.

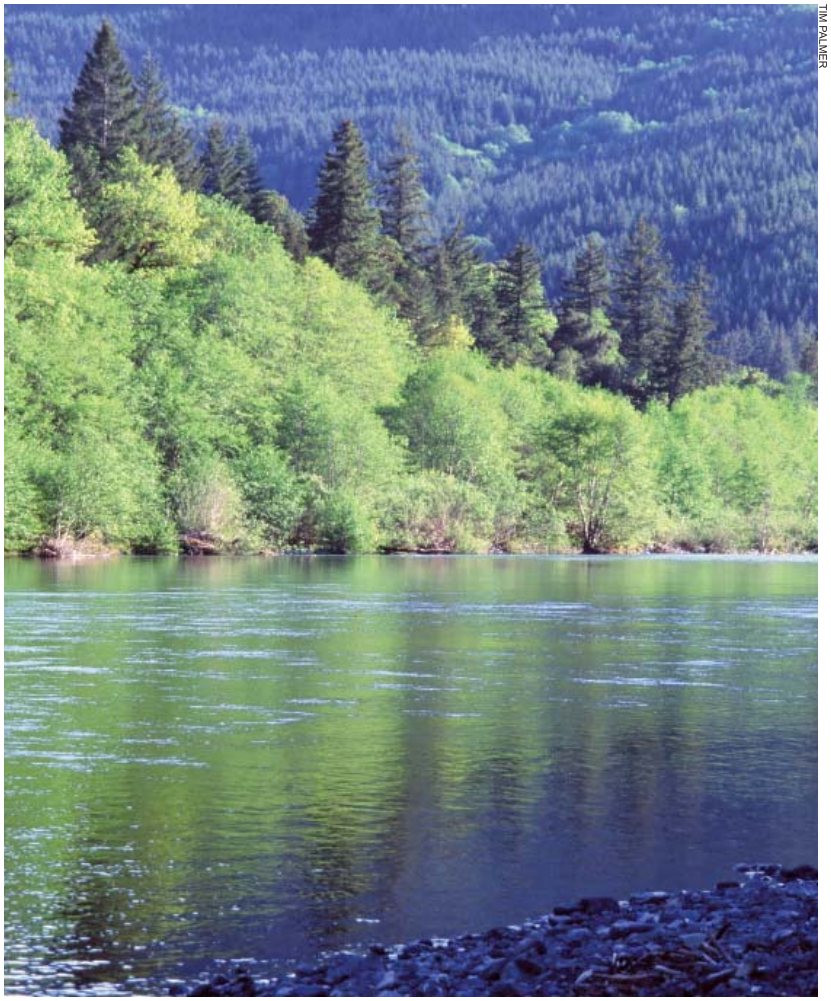
Willamette River, North Fork of Middle Fork

A gem of Oregon's central Cascades, this reach is among the finest in the entire Cascade Range in Oregon though it is surrounded by heavily logged mountains and isolated by downstream dams.

Flowing for 44 miles from its source in the central Cascade Mountains of Oregon to its confluence with the Middle Fork, this stream is the last bastion of wildness in the heavily dammed and logged Willamette River basin.

The river's source, Waldo Lake, is considered one of the purest lakes in the world. The upper 12 miles of the river remain roadless, and the river cascades over 34 waterfalls in 6 miles. A mid-section flows past the Constitution Grove—one of the Cascades' finest old-growth Douglas-fir and western hemlock forests. The lower river cuts through a 1,000-foot-deep canyon.

The basin supports a fine rainbow and cutthroat trout fishery designated for fly-fishing only. With waterfalls in lower reaches, anadromous fish have never migrated to upper reaches of this stream, and its native fish are unaffected by exotic or hatchery fish. The basin also offers winter habitat for elk, bears, cougars, other wildlife, and rare and endangered plants such as bog orchids and mountain ladyslippers. The Shale Ridge Trail follows the river's upper 9 miles.



TIM PALMER

Chetco River

OREGON'S "B" RIVERS

Chetco River

This important salmon and steelhead stream flows through wilderness and then a long, gentle, forested corridor to the ocean just north of California.

The 56-mile-long stream runs through the Siskiyou Mountains west to the Pacific Ocean at Brookings. The upper 26 miles bisect the Kalmiopsis Wilderness—an area of rugged mountains, varied geology, and rare plant communities. The river is one of the finer coastal salmon and steelhead rivers, with some of the highest smolt returns among all coastal rivers in Oregon. The basin also supports


TIM PALMER

Cummins Creek

varied wildlife.

In its upper reaches, the Chetco passes through steep terrain clad with old-growth forests and also slopes of sparse and unusual plantlife. The river erodes striking formations of water-worn bedrock before broadening into a valley with wide gravel bars. The northernmost grove of coast redwoods grows just north of the river at Loeb State Park.

From its source to the Siskiyou National Forest boundary, the Chetco is designated as National Wild and Scenic River, and its headwaters is the longest reach to flow through a designated wilderness on the West Coast. The Chetco and Illinois have the greatest undammed vertical drops among Oregon's coastal streams.

The lower 10 miles of the river flow through private land, which faces development pressures as the Brookings area grows rapidly. The city takes its drinking water from the lower Chetco, and new developments including a 1,000-home community north of Brookings threaten to overtax the river's meager summertime flows. Gravel mining on the lower river could also pose a threat to the health of the river and estuary.

Coquille River, South Fork

The South Fork Coquille flows over waterfalls, past old-growth forests, and then supports both winter and summer steelhead in its scenic, rapid route to the largest estuary in southern Oregon.

This largest fork of the Coquille lies just north of the Rogue River and flows west and then north to join the North Fork at Myrtle Point. As the second-largest river on the south coast of Oregon (next to the Rogue), the main stem Coquille then flows for about 38 estuarine miles to the Pacific at Bandon— the longest estuarine reach of river in the state next to the Columbia.

The South Fork drops gently through beautiful wooded terrain and deeply forested gorges and plunges over Coquille River Falls—one of the larger waterfalls in the Oregon Coast Range. With outstanding Class V whitewater in the high runoff of winter and spring, it flows beautifully through rocky rapids, borders the Port Orford Cedar Research Natural Area, and flows near the largest Port Orford Cedar in the world. The river is rated among only 7 other Oregon coastal streams as a high-quality winter steelhead fishery. With the Siletz and Rogue, it has one of few summer steelhead runs remaining in Oregon—a sign of good water quality.

Though most of the basin has been heavily logged, the corridor of this river remains among the most beautiful in the Oregon Coast Range, and a designated National Forest Scenic Byway follows much of the river's path. The North and Middle Forks of the Coquille have seen extensive logging and are dominated by hatchery fish.

Cummins, Rock, and Tenmile Creeks

Though it's not large, Rock Creek is the largest stream directly emptying into the Pacific and having no development or roads in its basin. Cummins Creek, just 6 miles to the north, is nearly as pristine, and Tenmile is a small stream lying between the two.

Cummins and Rock Creeks, 7- and 6-miles long respectively, flow

Deschutes River

directly into the Pacific in the Cape Perpetua area of Oregon's central coast. They may support larger native runs of salmon, steelhead, and cutthroat trout than any similar-sized watersheds in Oregon (these streams are much smaller than the Elk River). One fish count in 1979 found 50 coho salmon per 100 feet on the lower 2 miles of Cummins Creek. The basins include old-growth Sitka spruces up to 9 feet in diameter and giant Douglas-firs farther inland.

Between the two basins and lying both north and south of them, this section of the Oregon coast between Waldport and Florence has the largest block of public land extending from the Coast Range summit to the ocean. Other basins, including Bob Creek and Tenmile Creek (between Cummins and Rock Creeks) and Big Creek, Cape Creek, and Wapiti Creek (to the south) include some private land and heavily logged national forest but also have great restoration potential. The National Audubon Society and other collaborating organizations have restoration efforts underway at Tenmile Creek. With most if its basin in the Siuslaw National Forest but much of its river frontage in private ownership, Tenmile presents important restoration possibilities as the only sizeable stream between Cummins and Rock Creeks.

Deschutes River

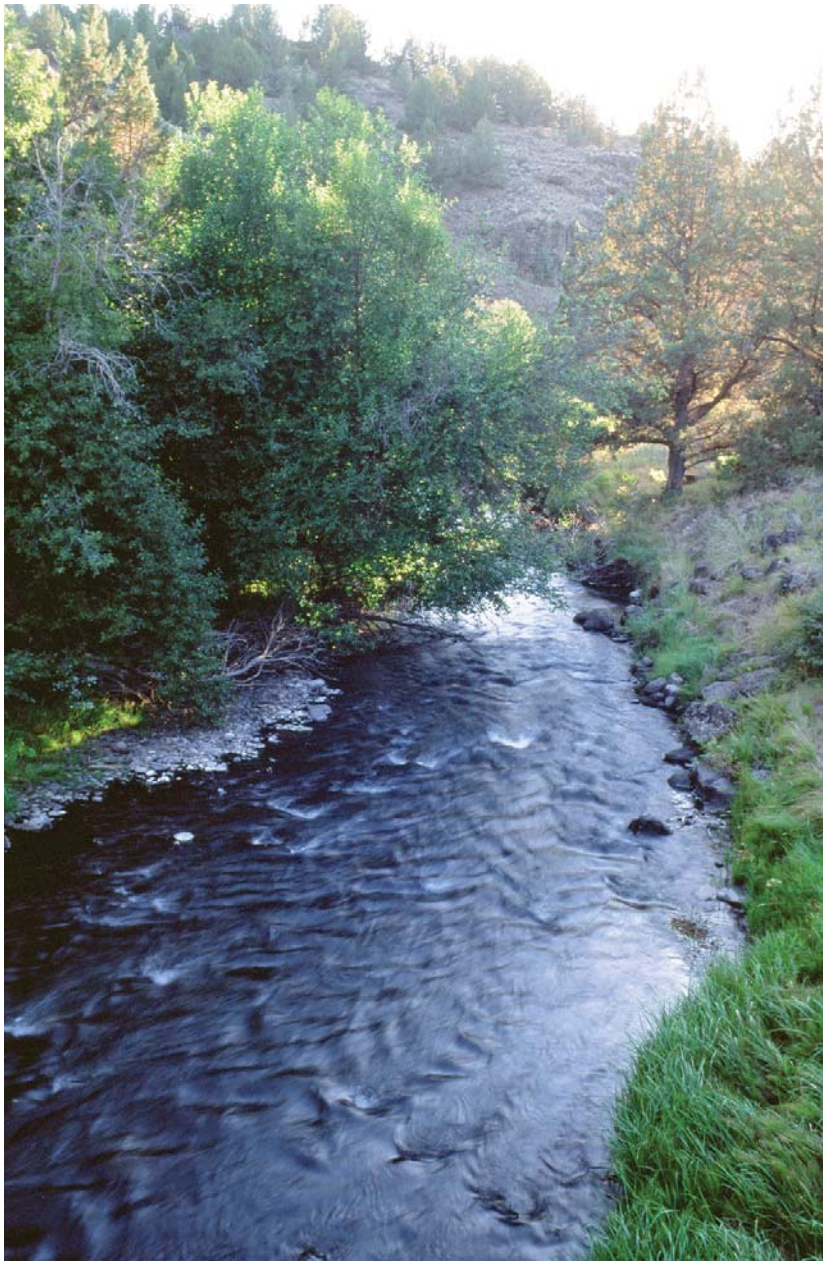
The Deschutes has some of the most popular whitewater in the West and hosts one of the better known sport fisheries in the country. The river with its exceptionally varied route, offers outstanding values for fish, wildlife, geology, recreation, and scenery.

Flowing north for 252 miles on the east side of the Cascade Mountains, this is the eighth-largest river in Oregon. Discounting rivers that originate in other states—the Snake and Columbia—it is by far the largest Oregon stream east of the Cascades.

Beginning on forested slopes south of the Three Sisters, the Deschutes flows south for 25 miles, enters drier country at the eastern base of the mountains, and then turns decisively to the north. It flows through the communities of Sun River and Bend and then descends into arid canyons that extend the whole way to the Columbia. Drawing most of its water from spring flows of the Cascades, the Deschutes is one of few major U. S. rivers outside Alaska with a natural peak discharge in midsummer.

The upper river is dammed twice, with diversions below Wickiup Dam that deplete its flow for 22 miles. But below Benbow Falls, the river flows for 54 miles through one of the most remarkable lava landscapes in America and is replenished by spring flows. Through these upper reaches, the river meanders past ponderosa pine groves and wet meadows and also plunges over low cataracts and major rapids. Some sections are developed with homes and recreational facilities, including the resort community of Sun River. A low dam blocks the river at the city of Bend.

For the next 40 miles, the river flows through drylands and canyons with several major rapids and falls. Round Butte Dam, which blocks the migration of salmon and steelhead, forms a major reservoir followed by the Pelton reregulating dam. Then the lower river runs for 100 miles through basalt canyons as much as half a mile deep. For about 45 miles the river borders the Warm Springs



Donner und Blitzen River

Indian Reservation. The Deschutes finally enters backwaters of The Dalles Dam on the Columbia.

Some of the upper reaches comprise outstanding fisheries for rainbow trout, Dolly Varden and kokanee, and also have introduced brown trout. Salmon and steelhead still migrate upriver from the Columbia to Pelton Dam. Spring chinook—threatened throughout the lower Columbia basin—continue to spawn in the lower Deschutes. An unusual plant, the Estes wormwood, occurs nowhere else in the world. About 89 percent of the upper river above Bend and 51 percent of the lower river flows through public land in Deschutes National Forest and Bureau of Land Management jurisdictions.

In three separate sections, National Wild and Scenic River designation protects 173 miles. State Scenic Waterway status applies to 199 miles.

Outstanding Deschutes tributaries include Browns Creek, Crescent Creek, Crooked Creek, Little Deschutes, Paulina Creek, Squaw Creek, White River, and the Metolius River.

The value of the river may be greatly increased with ongoing efforts to build effective fish passage around Round Butte Dam. Passage currently exists for upstream migrants, but downstream smolts do not survive. If the current plans are successful, salmon and steelhead will once again be able to reach the upper Deschutes and its stellar cast of tributaries.

The Deschutes shares the distinctive geography of central Oregon with the John Day River, and while both rivers are extremely valuable, they are quite different. The Deschutes carries more water, has ample flows throughout the summer, plunges through more whitewater, and is subject to immensely greater urbanizing pressures, especially in its middle reaches.

Few other rivers in the West combine the Deschutes' lava landscape, year-round flows, fishing popularity, and whitewater boating.

Donner und Blitzen River

Heavily glaciated though they are surrounded by desert, these streams drop through U-shaped canyons with distinct rims, riffle

past meadows and aspen groves, and plunge over waterfalls before reaching drier country below.

In south-central Oregon this unusual river system begins in the high, glaciated valleys of Steens Mountain and flows northwest to the Malheur National Wildlife Refuge and Malheur Lake, which has no outlet. The rare mottled sculpin survives in upper reaches. Native rainbow trout thrive, and the uncommon redband trout is found here.

The main stems and tributaries of Big Indian Creek, Little Indian Creek, and Fish Creek are all designated in the National Wild and Scenic Rivers system, as is the nearby and similar Kiger Creek. Most have fine riparian corridors.

Ironically, the Donner und Blitzen is dried up by irrigation diversions when it reaches the National Wildlife Refuge. About 64 percent of the river system is in BLM ownership, and the rest is private.

This group of streams makes up Oregon's finest set of endorheic rivers—streams that flow into isolated or land-locked basins where the water evaporates.

John Day River, Middle Fork

Though it is not as intact as the North fork, the Middle Fork John Day still offers fine anadromous fish habitat as it flows through its sparsely settled basin.

This major tributary to the North Fork of the John Day begins in the Blue Mountains east of Austin and flows northwest. Unlike the main stem, North Fork, and South Fork, this branch of the river was not included in the National Wild and Scenic Rivers system. The combined free-flowing mileage of the Middle Fork, North Fork, and main stem is 211 miles. The entire Middle Fork remains undammed.

Joseph Creek

In a dramatic, 2,000-foot-deep canyon, the creek rushes past primeval ponderosa pine forests and shelters populations of native rainbow trout, steelhead, and wildlife.

DAVE JENSEN

Minam River

Flowing north for 49 miles through northeastern Oregon and southeastern Washington, Joseph Creek joins the Grande Ronde River just upstream of its confluence with the Snake.

The stream has eroded through massive layers of Columbia Plain basalt. Bald eagles, peregrine falcons, and Lewis's woodpeckers are found here, along with elk, deer, bighorn sheep and bears. Rugged and inaccessible, the stream is used only lightly by hikers, hunters, and anglers. A 8.6-mile reach in the Wallowa-Whitman National Forest is designated as a National Wild and Scenic River.

Kilchis River

In a narrow, heavily wooded canyon, this small river has excellent water quality and scenery, and along with the Miami River, just to the north, has one of few chum salmon runs remaining on the Oregon coast.

The Kilchis flows southwest from its Oregon Coast Range headwaters to its mouth at Tillamook Bay. One of the least developed watersheds on the north coast—with some of the least intrusive road access—the river runs for 25 miles and is a favorite run of experienced kayakers in the winter rainy season. This is the most pristine of 6 nearby streams that remain as the only high-quality fall chinook rivers left in Oregon.

The stream's upper half lies in Tillamook State Forest. Land along the lower river is privately owned.

Minam and Lostine Rivers

Flowing from high peaks and wilderness, these adjacent rivers in northeastern Oregon are important to native bull trout and surviving runs of chinook salmon and steelhead.

The 50-mile-long Minam flows northeast from the peaks of the Wallowa Mountains to the Wallowa River, which then flows into the Grande Ronde. The upper 39 miles lie entirely in the Eagle Cap Wilderness and are designated in the National Wild and Scenic Rivers system—the only designated river reach outside Alaska that flows entirely through wilderness. The lower river is included in the Oregon Scenic Waterways system.

Crystal-clear water drops from 7,000-foot peaks, passes rugged outcrops of limestone and granite, winds around green meadows in a glacial valley, then courses through deep forests and old-growth ponderosa pine. Native rainbow trout, cutthroat trout, and bull trout do well here, and chinook salmon and steelhead still spawn in this upper tributary to the Snake River. A variety of wildlife thrive.

Along the entire river, only 8 miles have road access, all on Boise-Cascade Corporation land bordering the lower river.

The Minam flows into the Wallowa River only 8 miles above its confluence with the Grande Ronde, making the Minam-Wallowa-Grande Ronde system a vital habitat nexus for surviving runs of anadromous fish.

Likewise flowing north from the height of the Wallowa Mountains,

DAVE MOSKOWITZ

Salmonberry River

the Lostine River is just east of the Minam and runs for 31 miles to the Wallowa.

Amid stunning mountain scenery, the small stream cuts through alpine meadows, U-shaped glacial valleys, steep canyons with crags of granite, and then dense forests at lower elevations. Wild salmon and steelhead spawn here, and elk, deer, and bears thrive in the upper basin. Downstream from a 16-mile section that is designated in the National Wild and Scenic Rivers system and 97 percent publicly owned, the river flows northwest through a mix of forest and privately owned ranchland to its mouth.

With upper reaches much like the Minam River, but not as long, the Lostine is centrally located in the cluster of outstanding northeastern Oregon rivers including the Snake, Imnaha, Minam, Joseph Creek, Wenaha, and lower Grande Ronde.

Nehalem and Salmonberry Rivers

Less disturbed than many other watersheds on the heavily

logged north coast, the Nehalem and its tributary the Salmonberry have long undammed mileage and support three species of salmon and steelhead.

Following a circuitous route west, the Nehalem begins in the Coast Range northwest of Portland and ends in the large estuary of Nehalem Bay. Most of the basin has been logged, and roads parallel the river's route, though much of the river retains a wild character with recovering coniferous forests and scattered ranches and farmlands.

One of the larger rivers in the Oregon Coast Range, the Nehalem nearly transects the mountains, and it flows its entire length of about 114 miles with no dams. In some places hills rise 1,200 feet above the river. Steelhead, coho, and chinook salmon runs still do well in this river, which has significant restoration potential. The river has greater fish species diversity than most streams, and has chum salmon, which are only found from Tillamook Bay north. Much of the basin is publicly owned as the Tillamook State Forest.

The highlight of the Nehalem basin is the Salmonberry River, a large tributary that begins near the Nehalem's source but flows more directly west, running 24 miles before joining the main stem about 22 miles above its mouth. The Salmonberry flows almost entirely through the Tillamook State Forest, though several parcels of private timberland also lie along the river. The Salmonberry's winter steelhead run is still considered healthy, surviving at one-third or more of its historic abundance. The North Fork of the Nehalem is also a good fishery, though a hatchery is located along it.

Though a few other coastal rivers offer better anadromous fish habitat, the main stem Nehalem is unusually valuable in having no hatcheries to interfere with wild stocks. Only two other coastal streams in Oregon—the sizable Umpqua and Rogue—have longer dam-free mileage.

Owyhee River system

The upper Owyhee basin is the wildest, most rugged region in Oregon and one of the least accessible desert-canyon complexes in the West.

NORTHWEST RAFTING COMPANY

Owyhee River

This extensive river system drains the canyonlands in southeastern Oregon and southwestern Idaho. The West Little Owyhee flows north and joins the main stem, which at that point is sometimes called the South Fork. The main stem, Middle Fork, and North Fork flow northwest from Idaho to join at Three Forks, Oregon. From there to Owyhee Reservoir, the main stem flows 96 miles through inaccessible canyons except for one highway crossing near the community of Rome. Below a 35-mile-long reservoir on the lower river, the Owyhee is heavily depleted for its final 30 miles to the Snake River.

The entire 58-mile length of the West Little Owhyee is designated as a National Wild River. The Oregon portions of the main stem (24 miles) and North Fork (10 miles) are also National Wild Rivers. Substantial additional mileage lies as headwaters in Idaho, where wild and scenic river status is proposed.

All these branches and the main stem cut through vertically incised basalt canyons as deep as 1,300 feet. Remarkable cliff faces, hot springs, and geologic curiosities abound, along with bighorn

sheep, rattlesnakes, and many kinds of raptors. The main stem offers popular Class IV boating from April to June, and the North Fork and South Fork also offer wilderness kayaking runs.

Most of the main stem canyon is publicly owned except for 10 miles in the Rome area. The North Fork canyon in Oregon is 75 percent public land.

In a region overrun with exotic cheatgrass and other invasive plants, the Owyhee Canyons remain almost unaffected.

Smith River, North Fork (Umpqua River basin)

A small, isolated gem, this river flows through a deeply forested corridor and supports native fish, imperiled spotted owls and marbled murrelets, and other wildlife.

A tributary to the lower Umpqua River (not to be confused with the more southerly North Fork Smith that flows into California), this stream begins in the Coast Range, flows about 32 miles southwest, and joins the main stem Smith River roughly 17 miles above its confluence with the lower Umpqua in its broad estuary.

Lightly traveled roads follow some portions of this small river as it winds and curves through the mountains, and other sections are road-free. The basin has little development except for its lowest reaches. Two waterfalls lie in upper reaches, and some sections flow through old-growth conifers and overhanging maples. Four runs of anadromous fish and wild resident cutthroat trout thrive here in a region otherwise heavily logged. Several nesting sites of northern spotted owls and marbled murrelets have been found on this river.

White River

From the slopes of Mount Hood, this spectacular river flows into forests and then drylands, dropping over waterfalls in a remote canyon with resident trout and abundant wildlife.

The 47-mile-long river forms at the base of glaciers on the south face of Mount Hood and flows southeast to the Deschutes River 5 miles below Maupin. Headwaters tumble over boulders, cobbles, and rocky glacial outwash, and the milky-gray glacial meltwater courses through braided channels offering spectacular views of Mount Hood—the highest peak in the state. The river enters the forest belt of the east Cascades and then drops through a spectacular canyon with multiple waterfalls. The upper 22 miles flow entirely through the Mount Hood National Forest, while the lower 25 miles cross BLM and private land used for grazing and agriculture.


JOSH KLING

North Fork Smith River

The Forest Service found remarkable botanic and geologic values, and the stream also has a fine resident trout fishery and wildlife habitat along its entire length, which has no paralleling road and only a few road access points. Below White River Falls State Park, near the mouth, the river provides spawning habitat for salmon and steelhead that have come up the lower Deschutes.

The White is one of few rivers in Oregon that is nearly entirely pristine and free of roads and development, and the boating guide Soggy Sneakers calls the 11-mile section above Tygh Valley one of the most delightful canyons in Oregon.

Clackamas and Roaring Rivers

An important anadromous and trout fishery, the Clackamas hosts one of only two remaining runs of spring chinook in the Willamette basin and significant runs of coho and winter steelhead. This river and its tributary, the Roaring River, flow from wilderness down to lowlands facing development pressures at the edge of the Portland urban area.

Originating at the Cascade crest near Olallie Butte, north of Mount Jefferson, the Clackamas flows for 75 miles northwest and joins the Willamette River at Oregon City, just downstream from the lowest Willamette dam. Two dams and one major reservoir, 3.5 miles long, lie on the river's main stem.

The upper two-thirds of the river, above North Fork Reservoir, is 95 percent public land within the Mount Hood National Forest. Dense forests and canyon walls alternate with open meadows at the headwaters, followed by a deep, forested canyon. The lower third of the river's frontage is mostly private land with at least 8 public-recreation sites and access areas at the very edge of Portland.

Studies suggest that the late-winter Clackamas coho is the last viable native coho population remaining in the Columbia River Basin. This run benefits from roadless areas at the river's headwaters—one of the finest wildland complexes in the Oregon Cascades. Yet the wild stocks of fish are in serious decline, affected by hatcheries, hydropower generation, logging, and development and farming along the lower river.

The upper Clackamas also features excellent scenery, water quality, whitewater, old growth forests, and wildlife. Bald eagles, ospreys, spotted owls, elk, deer, black bears, bobcats, cougars, river otter, and other wildlife thrive. Seven threatened or endangered plant species have been found. Geothermal vents heat the Austin Hot Springs along the river. The Riverside National Recreational Trail and other trails follow the water in several sections and lead to old growth forests at Alder Flat. Other parts of the upper basin have been intensively logged.

TIM PALMER

Clackamas River

The uppermost 47 miles of the river, from the source to Big Cliff, are designated in the National Wild and Scenic Rivers system. The Oregon State Scenic Waterways system also protects 54 miles of the upper river, from the Olallie Lake Scenic Area to North Fork Reservoir, and 12 miles of the lower river, from River Mill Dam to Carver, which is 8 miles upstream from the mouth.

Private property along the lower river will become increasingly prone to land development here near Portland.

The Clackamas is among the best rivers on the west side of the Cascades in Oregon. Outstanding tributaries include the North Fork, Oak Grove Fork, South Fork, Roaring River, and Collawash River. The Clackamas basin adjoins several other fine river basins: the Breitenbush and Little North Fork Santiam to the south and the Salmon and Sandy to the north.

The 14-mile-long Roaring River, which enters the Clackamas 5 miles above North Fork Reservoir, is a particularly notable tributary. With no development and no roads, this is an archetypal wild river, plunging at the steep rate of 200 feet per mile from an elevation of 4,000 feet. Beginning as a U-shaped glacial valley it turns to a V-

shaped canyon full of old-growth conifers and habitat for peregrine falcons, bald eagles, and spotted owls. Wild coho, chinook, steelhead, rainbow trout, and cutthroat trout spawn here. Remote trails reach the river in only a few places. The entire stream is in the National Wild and Scenic Rivers system. The South Fork Roaring River is similarly wild but undesignated for its 4-mile length.

The Clackamas, Sandy, and Willamette are the only major Oregon streams in the Columbia River system that are uncompromised by downstream dams on the Columbia.

Drift Creek

This small stream flows through one of the finest remaining wilderness areas on the Oregon coast, and adjoining private lands are largely roadless as well.

The 25-mile-long river flows through the Oregon Coast Range and into the Pacific Ocean at Alsea Bay near Waldport. While the watershed is surrounded by Siuslaw National Forest, most of the stream winds through private forest land, with only about 5 miles in the national forest. This middle reach, however, is in the Drift Creek Wilderness, a 5,800-acre tract of pristine old-growth. Additional, adjoining wild lands bring the total roadless area to 11,500 acres—the second-largest wild acreage in the Coast Range north of the Siskiyou Mountains. Only the Elk River has more wilderness and roadless area.

In this wilderness tract, large western hemlocks and Douglas-firs thrive. The greater basin supports spotted owls, bald eagles, Roosevelt elk, deer, and black bears. Native chinook, coho, steelhead, and cutthroat trout migrate from the ocean each year. Hatchery fish have never been stocked.

Excellent trails traverse the wilderness and provide access to the creek, and Drift Creek offers the finest wilderness and old-growth hiking opportunity along any stream in the Oregon Coast Range (the Elk River has few trails).

While Cummins and Rock Creeks, to the north, flow through similar coastal wilderness areas, these are smaller than the wild area

BOB KETTER

Drift Creek

surrounding Drift Creek. Even though Drift Creek is recommended for protection only on the Nationwide Rivers Inventory and the Forest Service's list of outstanding waterways, this stream is superlative as a sample of a small Coast Range stream winding through old-growth and recovering forest.

The stream presents an outstanding opportunity to protect adjoining roadless National Forest land as wilderness, but even more important, virtually all the private land in the entire watershed remains undeveloped, and basin-wide protection here may be feasible and would result in an outstanding coastal river.

Eagle Creek

With nearly its whole basin in the Columbia Wilderness, and its lower reach in the Columbia River Gorge National Scenic Area, this 13-mile-long stream represents the most significant Oregon waterway incised into the Northwest's grandest gorge.

Oregon has several Eagle Creeks that are fine wild streams; this

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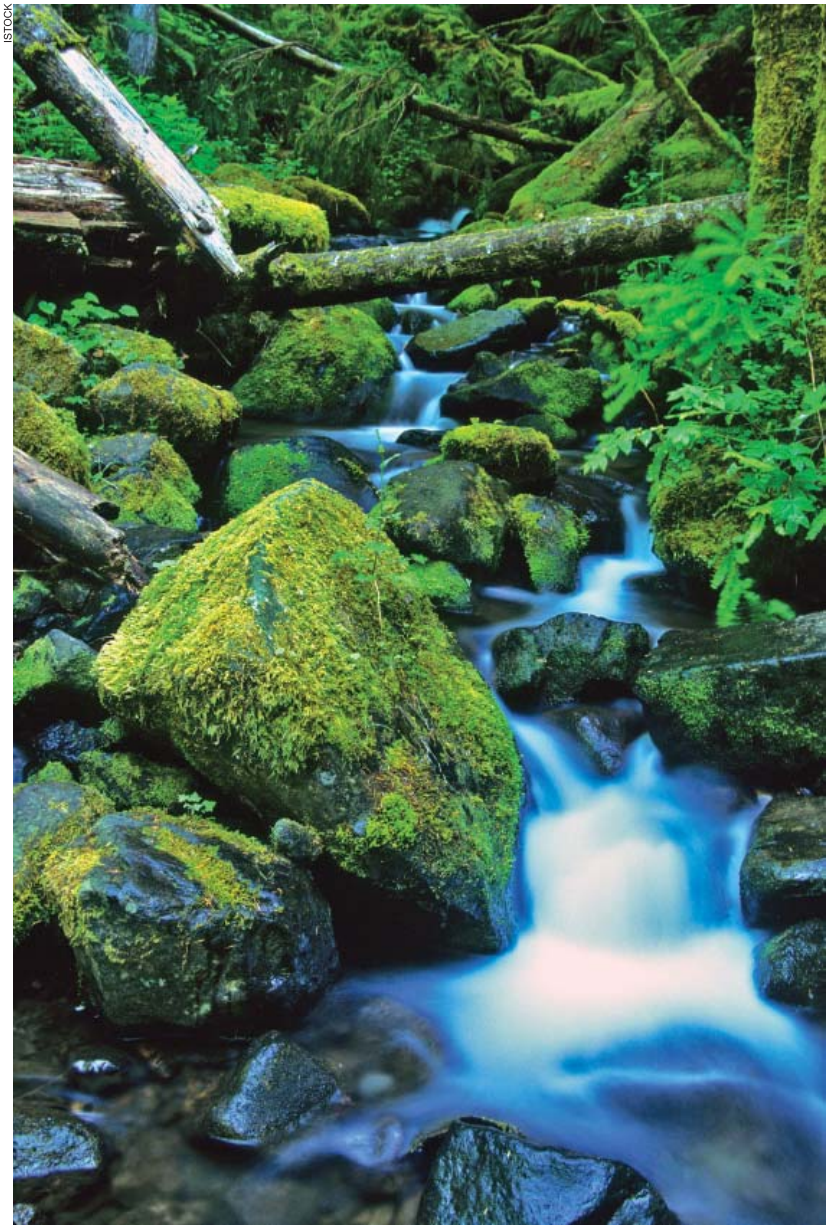


Eagle Creek

one flows north to its confluence with the Columbia River just upstream of Bonneville Dam. A highlight in a region of spectacular scenery, Eagle Creek is one of the most popular hiking destinations in the greater Portland area. A trail passes 5 spectacular waterfalls and other cascades.

Basalt cliffs characteristic of the Gorge are fully exposed in some places, but most of the streamfront and watershed are blanketed in deep forests and luxuriant old-growth Douglas-firs, western hemlocks, and bigleaf maples.

Entirely in public ownership, this stream is the principal Columbia tributary on the south side of the Gorge, which is bounded on the west by the Sandy River and on the east by the Hood River. The Eagle Creek Trail offers one of the premier waterfall-hiking opportunities in the Northwest.

French Pete and Separation Creeks

These two creeks are two of the finest representatives of small wilderness streams in the heart of Oregon's Cascade Mountains.

The 15-mile-long French Pete Creek begins high in the central Cascades and flows northwest to its confluence with the South Fork McKenzie just upstream of Cougar Reservoir. One of the most pristine streams in the Northwest, the entire length of French Pete Creek flows through the Three Sisters Wilderness. A primitive trail follows along much of the route, and old-growth forest is found through much of the basin. Efforts to designate this watershed as a wilderness in the early 1970s marked one of the first efforts to protect significant old-growth forests in the National Wilderness Preservation system.

Following a similar route, Separation Creek begins on the western flanks of the 10,348-foot South Sister and runs about 13 miles west to Horse Creek and the McKenzie River. Flowing through the Three Sisters Wilderness in its upper miles, its small headwaters are spectacular at the base of the snowcapped volcanos. Then the creek churns through a deep forest of old-growth conifers. A trail parallels the creek through its middle section.

Grande Ronde River, lower

A long river of northeastern Oregon, the Grande Ronde winds through a spectacular landscape of forests, grasslands, and canyons and provides for native bull trout as well as depleted but surviving runs of Snake River salmon and steelhead.

The 150-mile-long river flows northeast from the Blue Mountains, through the town of LaGrande, and then on to the Snake River at the lower end of Hells Canyon.

Upper reaches gather water from the Wallowa-Whitman National Forest. For more than 50 miles the river eases through ranchlands northeast of LaGrande. Much of this route has been relocated from its original path by a channelization project called the State Ditch. Below its confluence with the Wallowa River, the Grande Ronde cuts canyons as deep as 3,000 feet with grassy slopes and a savanna of ponderosa pines and Douglas-firs.

For 44 miles, from the Wallowa confluence to the Washington-state line, the river is designated in the National Wild and Scenic Rivers system. The lower canyon continues for another 38 miles in Washington before entering the Snake. A beautiful landscape of rolling hills and steep slopes blanketed with grass, the lower canyon is home to 1,000 elk, and also to deer and bighorn sheep. Otters, great gray owls, goshawks, and dozens of bald eagles can sometimes be seen along this reach, which makes a popular multi-day float trip for drift boaters, rafters, kayakers, and canoeists. Trout and steelhead fishing are popular, and native rainbow and bull trout thrive.

Although the upper river is heavily affected by diversions, logging, grazing, channelization, and development, the lower canyons are popular for recreation. About 66 percent of the lower canyon river frontage is publicly owned. The Grand Ronde once boasted fine salmon and steelhead runs, but these fish have been decimated by downstream dams—4 on the lower Snake River below Lewiston and then 4 on the lower Columbia.

Flows on the lower Grand Ronde benefit greatly from the additions of outstanding cold-water tributaries—the Wallowa (including its tributaries the Minam and Lostine), the Wenaha, and Joseph Creek.

RUSS SCHNITZER / SCHNITZERPHOTO.COM

Hood River at Punch Bowl Falls

Hood River, with West Fork, Lake Branch, Middle Fork, and East Fork

Draining the north and east slopes of its namesake, Oregon's preeminent Mount Hood, the Hood River is also one of the largest salmon streams having only one Columbia River dam located downstream.

All three of the river's tributary forks flow from the northern and eastern flanks of the 11,235-foot Mount Hood—a glacial monolith and the highest mountain in Oregon. They collect cold glacial flows from 6 of the mountain's 11 glaciers. Lake Branch of the West Fork begins at the western limit of the basin, flowing from the iconic beauty of Lost Lake—a scenic highlight of Oregon with Mount Hood rising majestically in the background. The West Fork collects the north-face runoff of the mountain and flows about 18 miles to

its confluence with the main stem. Roads follow along most of this route. Several private inholdings lie along the stream's upper half, which is otherwise in the Mount Hood National Forest. The lower half flows mainly through private land.

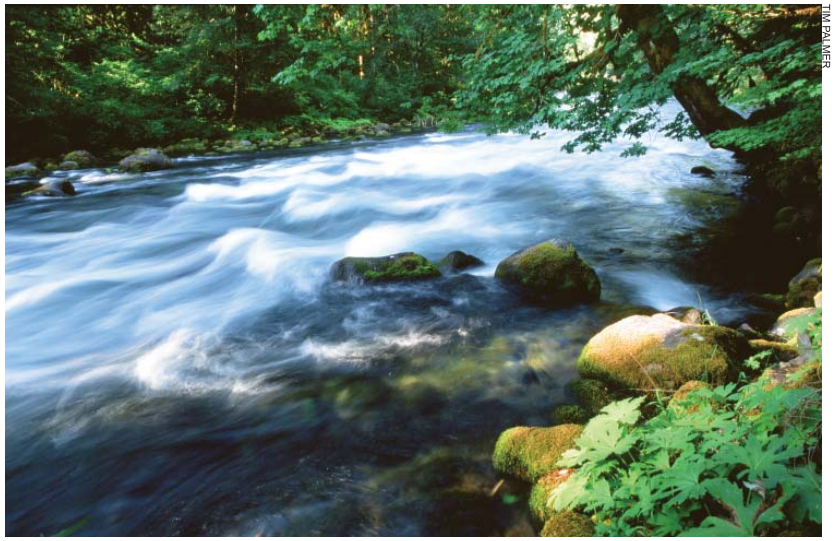
The smaller Middle Fork likewise collects north-face runoff of Mount Hood and flows for about 14 miles to its confluence with the East Fork; roughly half this length is in the national forest.

The larger East Fork collects the remainder of the Mount Hood's north-and east-side runoff and flows for about 27 miles to its confluence with the Middle Fork. Its upper 15 miles flow through national forest; the remainder runs through private land in one of Oregon's outstanding fruit-farming valleys. Highway 35 runs along the East Fork for most of its length. The main stem then extends for about 14 miles to the impounded Columbia River at the town of Hood River.

The Hood River system has only one dam, at Powerdale on the lower river, and its owner, PacifiCorp, plans to remove it in 2010. While the river currently has runs of coho, spring chinook, winter steelhead, and summer steelhead, its fisheries should improve with the removal of this significant barrier. The river also has bull trout—one of the easternmost populations in Oregon.

As the destination of all Mount Hood's cool, north-side runoff, this river could have tremendous significance in the future as the climate warms, glaciers recede, and cold waters such as these become less common (all the Mount Hood glaciers have retreated 61 percent through the past century). This cold-water runoff, combined with the scheduled dam removal and the fact that only one Columbia River dam lies downstream, may make the Hood River system one of truly outstanding importance to the survival and recovery of Columbia River salmon and steelhead. The Hood River will be among the largest dam-free tributaries to the lower Columbia below The Dalles Dam (others are the East Fork Lewis River in Washington and the Sandy in Oregon, which have no dams downstream, and the Klickitat and White Salmon in Washington, which have only Bonneville Dam downstream).

The East Fork Hood River has important wet meadow habitat as well as volcanic canyons, and the Middle Fork flows past jagged lava flows. The West Fork, East Fork, and main stem have difficult but popular whitewater sections. Proposed additions to the Mount Hood Wilderness area would further protect parts of all these main stem tributaries. Planned acquisitions by the Western Rivers Conservancy will safeguard up to 3,000 acres on all three major forks.


TIM PALMER

McKenzie River

McKenzie River, upper

This popular recreational river flows from the central Cascades and offers good habitat for native fish, geologic attractions, and old-growth forests.

An important river of Oregon's central Cascades, the McKenzie runs west to the Willamette at Eugene. While the shorelines of the lower river have roads and residential development, the upper reaches above the Blue River are more natural. Roads still parallel much of the route, but the upper basin is largely national forest.

Clear Lake, at the river's source, resulted from a 3,000-year-old lava flow that impounded the McKenzie; the remains of the forest


JOSH KLING

Nestucca River

that was rapidly drowned by the lake can still be seen underwater. From the lake outlet, the river rushes through old-growth Douglas-firs and western hemlocks. It drops over several waterfalls and then pools up for 1 mile behind Trail Bridge Dam. The upper river is considered to have some of the cleanest water in the state.

Though affected by hydropower development, the upper river remains a fine fishery supporting bull trout, cutthroat, rainbow trout, and wild spring chinook. The McKenzie River National Recreation Trail closely follows the river with many scenic views, and below Olallie Campground the river becomes one of Oregon's most popular rivers for whitewater rafting, kayaking, and canoeing.

Nestucca River

Though degraded in some ways, the Nestucca River remains one of the finest anadromous fisheries on the northern Oregon coast and a popular river for recreation.

Rising at the height of the Coast Range, the Nestucca flows west to the Pacific Ocean at Pacific City, south of Tillamook. One of the longer rivers of the Oregon coastal mountains, the Nestucca is blocked by McGuire Dam near its source, where water is diverted east to the city of McMinnville. The rest of the river flows for 48 miles to the ocean. The beautiful, forested stream is important for fall chinook, coho, chum, steelhead, and cutthroat trout. The river produces some of the highest numbers of steelhead and salmon in Oregon. With many different runs, anadromous fish use the river nearly all year long. Elk, bears, and bald eagles are also found here. Much of the river is popular among anglers, and canoeists and drift boaters float in many sections.

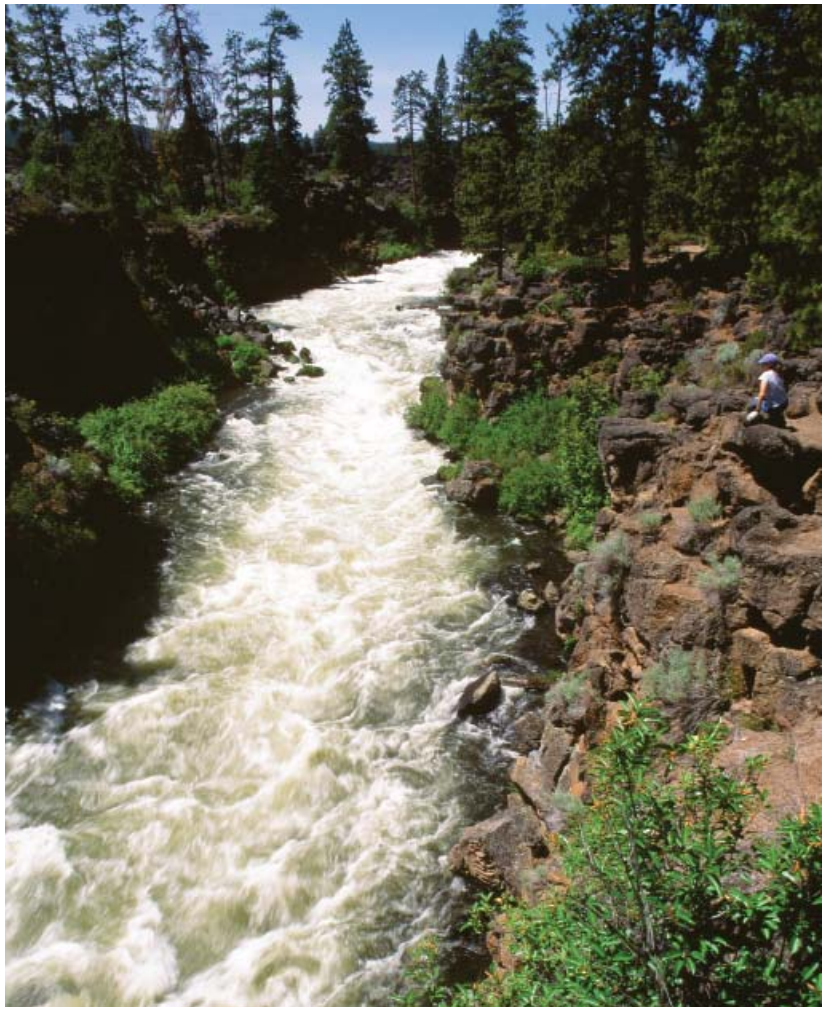
The entire valley is road accessible. The upper 12 miles are 92 percent owned by the Bureau of Land Management, which has designated this reach as an Area of Critical Environmental Concern. The lower river is mainly in private ownership. Much of the basin and riverfront has been heavily logged. Ranches, roads, and private development are found throughout the lower 35 miles.

Along with the similar but smaller Little Nestucca, this river is part of a cluster of Oregon north coast rivers that still retain high values for salmon and steelhead; others nearby are the Tillamook, Trask, Wilson, and Kilchis. The Wilson and Nestucca are the longest of these, and the Nestucca has less-intrusive highway development. Though the Siuslaw and Nehalem are north coast rivers with significant undammed mileage—117 and 114 miles respectively—the Nestucca and its nearby rivers appear to have better wild anadromous fish habitat.

Siletz River

With long, undeveloped reaches through forest, whitewater, gentle current, and estuary, the Siletz River hosts the finest summer steelhead run on the central and northern Oregon coast and several other populations of anadromous fish, as well.

Located in the north-central portion of the Oregon Coast Range, the Siletz begins with its North and South Forks and then continues for 68 miles to Siletz Bay. A paved road follows most of the river's course, with gravel roads reaching to the headwaters, though in many place the roads are set back far from the river. Nearly the



Umpqua River

entire basin is privately owned; much of it by the timber industry.

The relatively healthy summer steelhead run in this river is extremely rare in the Oregon Coast Range; the Nestucca and Tillamook River systems (and the Rogue River, in the southern Coast Range) are the only other streams with viable summer runs, but the Siletz's is the finest on the central-northern coast. The health of this fishery is indicative of clean, cool waters throughout the summer, which persist even with heavy logging activity in the past and continuing timber harvest. The clarity may be related to plentiful bedrock in the river's course. The Siletz also has runs of coho salmon, spring chinook, and winter steelhead, with a steelhead sportfishing season in winter, summer, and fall, and a chinook season in the fall.

About 4 miles below the North and South Fork confluence, above Elk Creek, the river plunges down a 70-foot drop. Below here, the river offers Class I-IV whitewater boating, with a long section of gentle water below Moonshine County Park and then 25 miles of tidal flow leading to Siletz Bay.

Sycan River

The Sycan watershed is heavily used for logging and grazing but remains a beautiful example of a relatively undeveloped Great Basin river and is the finest of the major tributaries flowing into Klamath Lake and thus nourishing the upper Klamath River.

Located in south central Oregon, this 73-mile-long river begins in the mountains southwest of Summer Lake, and then runs west and south to its confluence with the Sprague River, which flows into the Williamson River and Upper Klamath Lake.

With its upper and middle reaches in Fremont National Forest, the river runs through forests and stringer meadows, and then into the biologically rich Sycan Marsh. Owned by the Nature Conservancy, the 23,600-acre wetland is leased for ranching and supports 130 bird species including one of the largest nesting colonies of sandhill cranes and bald eagles. Downstream from the marsh, the river drops through lava-walled canyons, meadows, old stands of ponderosa and lodgepole pines, and ranchlands. The river is home to a variety of wildlife and a fine native trout fishery.

Umpqua River with South Fork

Though affected by logging, ranching, development, and the Interstate 5 freeway corridor, the South Fork of the Umpqua still supports three endemic species of fish, and the South Umpqua-

Umpqua combination has the longest dam-free mileage on the entire West Coast south of Canada.

Beginning at its North and South Forks confluence west of Roseburg, the main stem Umpqua flows west for 113 miles to the Pacific at Reedsport.

Next to the Columbia, this is the largest Oregon river emptying into the Pacific, flowing with an average of 7,786 cfs. The North Fork has outstanding natural values, and the South Fork has an unusual degree of endemism for warm-water aquatic species. The Umpqua chub, Umpqua dace, and Umpqua pikeminnow are found only in this river system. The main stem, however, is overrun with introduced smallmouth bass.

Unique on the West Coast south of Canada, the Umpqua is the largest river with no main-stem dams. Even more impressive, the combined Castle Rock Fork/South Fork/main stem Umpqua flows for 223 miles with no major dams—the longest free-flowing length on the West Coast and the second longest in Oregon (only the John Day has longer dam-free mileage).

The river flows through hundreds of riffles, long placid pools, and several steep and rocky rapids as it transects the entire width of the Coast Range. Unlike the Rogue and Klamath, the Umpqua follows a gentler course and its valley is accessible and settled with rural homesites. A mix of forest and ranchland lines the riverfront. Ospreys, bald eagles, and other wildlife thrive along the extensive riparian zone of cottonwoods and willows, and the river continues to support runs of salmon, steelhead, and warm water fish. Unlike most streams, it has both summer and winter steelhead. Introduced smallmouth bass, however, have proliferated throughout the main stem, overtaking native species and putting the river in biological jeopardy. Nonetheless a popular fishery, the Umpqua is often floated in drift boats. The river also presents the best opportunity on the entire West Coast for an extended canoe trip, offering a fine voyage of a week or more.

Even though the Umpqua has significant problems as a natural river, its size, extensive free-flowing length, and diversity of habitat still make it an exceptional waterway in Oregon and the West.

Wassen Creek

A small but remarkable and vulnerable stream, Wassen Creek is virtually inaccessible by road or trail and flows as a nearly pristine waterway within a thoroughly logged region.

This 18-mile-long tributary to the lower Smith (Umpqua basin) lies on the opposite side of the Smith River from the Lower Smith River Road, and upper portions of the basin are only touched by logging roads. Upper reaches of the river have many ledges and waterfalls, and the stream flows through great forests of large, mature conifers. The basin supports spotted owls and other old-growth dependent species.

About one-third of the river flows through private land, one-third Siuslaw National Forest, and one-third Bureau of Land Management land.

Whitehorse and Little Whitehorse Creeks

These small streams flow through excellent riparian habitat within arid mountain country and support a rare native fish species of the Great Basin.

In southeast Oregon, Whitehorse and Little Whitehorse run north from the Oregon Canyon and Trout Creek Mountains to the landlocked Coyote Lake, east of Steens Mountain. Cows were removed by the Bureau of Land Management in the late-1980s, and beavers have returned and established wetlands and choice riparian areas for waterfowl and wildlife within this harsh desert region.

Whitehorse Creek is the primary habitat for an endemic form of the threatened Lahontan cutthroat, sometimes called the Whitehorse cutthroat trout. ■

Conclusion

From the hundreds of Oregon rivers and streams that are worthy of protection, 215 rivers were considered in this survey's base list, which was taken from 18 already-existing lists of rivers deemed by others as having exceptional values and from 8 interviews with Oregon river experts in biological fields. The survey identified 18 Oregon rivers and tributaries in the "A" list of highest value, 20 in the "B" list, and 21 in the "C" list.

This survey identified 4 distinct clusters or regions of highest-value natural rivers in Oregon. All of the state's 5 ecoregions are represented in these 4 clusters:

Siskiyou Mountain rivers

This cluster of streams, including the Rogue, Illinois, Chetco, Elk and South Fork Coquille, along with additional tributaries, drains the Siskiyou Mountains, world renowned for their biological diversity. With dams affecting few of these streams, with one of the largest roadless and wilderness area complexes on the West Coast, and with some of the finest remaining anadromous fish habitat, this is one of the most extraordinary regions of rivers in the West.

Northern Oregon Cascade rivers

This group includes the Sandy, Salmon, Clackamas, Roaring, Collawash, Breitenbush and its forks, and Little North Santiam. This is the largest cluster of relatively intact streams remaining in the Oregon Cascades, and with their mouths being low in the Columbia and Willamette systems, they are the least-affected by downstream dams blocking anadromous fish migration. Large blocks of public land and wilderness typify the headwaters as well as many of the middle and some of the lower reaches of these streams. The 2007 removal of Marmot Dam on the Sandy ant the ongoing restoration of that stream makes this sizable river at the edge of the Portland urban area a strong anchor for a significant region of natural rivers.

RUSS SCHNITZER

Elk River

John Day River system: including the main stem and its North, Middle, and South Forks.

This large river system is one of the rare strongholds of anadromous fish in the interior basins of the West--only two dams lie downstream. For long, continuous free-flowing mileage, the John Day is one of the best rivers in the West; its dam-free mileage exceeds all other rivers in Oregon and Washington.

Lower Grande Ronde River system

This includes the Wenaha, Joseph Creek, Imnaha and its South Fork, Minam, Lostine, Wallowa, and the lower Grande Ronde from the Wallowa to the Snake. Though these streams suffer from 8 downstream dams on the Columbia and Snake Rivers, they remain one of the final, threatened strongholds of anadromous fish in

the immense Snake River system. Several of these streams are exceptionally wild, with minimal effects from road building and other intrusions. Logging, farming, ranching, and land development affect the Grande Ronde in its upper reaches, though restoration possibilities are being pursued there.

In addition to these 4 highest-ranking river clusters, 5 other clusters also have great value, listed here as a secondary set of river regions:

Northern Oregon coastal rivers

These rivers, including the including the Nehalem, Miami, Kilchis, Wilson, Trask, Tillamook, Nestucca, and Little Nestucca, account for most of the rivers along a 45-mile length of coastline. This region is distinctive in Oregon because most of the streams are on the American Fisheries Society list of highest-value anadromous fisheries—the only such cluster on the Oregon coast.

Central Oregon coastal rivers

Drift Creek, Cummins Creek, Ten Mile Creek, Rock Creek, Big Creek, Cape Creek, and the North Fork Siuslaw flow mostly from the Siuslaw National Forest, meet the Pacific in a 30-mile length of coastline. Restoration of wild characteristics like those now found at Cummins and Rock Creeks may be more feasible with this cluster of streams than anywhere else on the coast.

Umpqua River system: including North, South, and tributaries.

Despite a large upstream dam, the North Fork and its tributaries--Steamboat and Boulder Creeks—are outstanding. The South Umpqua is a center of endemism, and the large main-stem Umpqua offers a great variety and extent of habitats. The Castle Rock Fork/South Umpqua/Umpqua combination is the longest undammed reach of river on the West Coast. For a large river system with ample flows and restoration possibilities, the Umpqua is clearly a highlight.

JOSH KLING

Kentucky Falls on the North Fork Smith River (Umpqua River system)

Malheur Lake tributaries

The Donner und Blitzen and its tributaries of Little Blitzen, Kiger, Cucamonga, McCoy, Bridge, Mud, and Fish Creeks comprise an unusual set of streams draining the remarkable Steens Mountain. From the north, the Silvies River and its tributaries are also notable. Though diversions affect all of these streams as they near the landlocked Malheur Lake, this complex represents an excellent and unusual network of waterways in the arid Columbia Plateau ecosystem that still sustains high wildlife values.

Owyhee River system: including the main stem, North, Middle and SouthForks, and West Little Owyhee

This large river system includes an extraordinary complex of wild desert canyons, all connected with one another, remote, and free-flowing until the lower reaches of the main stem Owyhee. ■

Sources for the Oregon Survey

Oregon Rivers were evaluated using the following sources. Please see Appendix 1 for criteria.

1. Existing Inventories Of High-Quality Rivers
   - National Wild and Scenic Rivers
   - National Wild and Scenic Study Rivers
   - National Wild and Scenic Study Rivers
   - State-designated wild and scenic rivers
   - Nationwide Rivers Inventory (National Wild and Scenic Rivers Act)
   - U.S. Forest Service rivers recommended for protection
   - Bureau of Land Management rivers recommended for protection
   - Bureau of Outdoor Recreation, Western U.S. Water Plan
   - Columbia Interior Basin Ecosystem Management Plan

2. Interviews with biologists and local experts
   - Leslie Bach, Oregon Nature Conservancy, Director of Freshwater Programs
   - Brett Roper, U.S. Forest Service, Fish and Aquatic Ecology Unit, Aquatic Monitoring Center Program Leader
   - Jack Williams, senior scientist, Trout Unlimited
   - Jeff Dose, U.S. Forest Service, fisheries biologist, Umpqua National Forest
   - Stan Gregory, Oregon State University, Professor of Fisheries, Dept. of Fish and Wildlife
   - Dave Moskowitz, fish conservation policy consultant
   - Jeff Rodgers, Oregon Department of Fish and Wildlife, Oregon Plan Monitorin Coordinator
   - Malin Pinsky, Wild Salmon Center, Science and Conservation Progra
   - Dave Heller, U.S. Forest Service , Regional Fisheries Program Leader

3. American Fisheries Society (A1, A2). This group featured an article titled, "A Survey of Healthy Native Stocks of Anadromous Salmonids in the Pacific Northwest and California," by Charles Huntington, Willa Nehlsen, and Jon Bowers in the March 1996 issue of its journal Fisheries. The article identified the healthiest stocks of salmon and steelhead for California and the Northwest. These are listed in our survey as A1, indicating streams where existing runs are considered to be "at least two-thirds as abundant as would be expected in the absence of human impacts," and A2, indicating streams where the runs are no less than one-third the size of their pre-settlement estimates.

4. Oregon Rivers Council (O). In 1988, the Oregon Rivers Council, a conservation organization that later became the Pacific Rivers Council, prepared a 137-page report with 2-to 3-page descriptions of 45 different rivers recommended for National Wild and Scenic designation. This report offers in-depth information about many of the finest rivers in Oregon (Oregon Rivers Council, Omnibus National Wild & Scenic River Bills, 1988).

5. Oregon Biodiversity Project (OB). This collaborative effort to identify opportunities and strategies for biodiversity conservation in Oregon produced an extensive report that includes streams of special value (Oregon's Living Landscape. Washington, D. C.: Defenders of Wildlife Publications, 1998).

6. Oregon Natural Resources Council (ON). This statewide conservation group has identified important areas and streams having exceptional values related to wildlands in its publication Oregon Wild: Endangered Forest Wilderness. Portland: ONRC, 2004. This organization is now called Oregon Wild.

7. Siskiyou Project (SP). The Siskiyou Project, a regional conservation organization based in southwest Oregon, has proposed a "Siskiyou Wild Rivers National Momument," which includes parts of 5 major Oregon rivers.

8. Trout Unlimited (TU). This national conservation organization has highlighted streams that support important Oregon native fisheries in its publication, Where the Wild Lands Are: Oregon (Pollock, ID: Trout Unlimited Public Lands Initiative, 2006).

Appendix 1: Assessing the Quality of Rivers

To 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

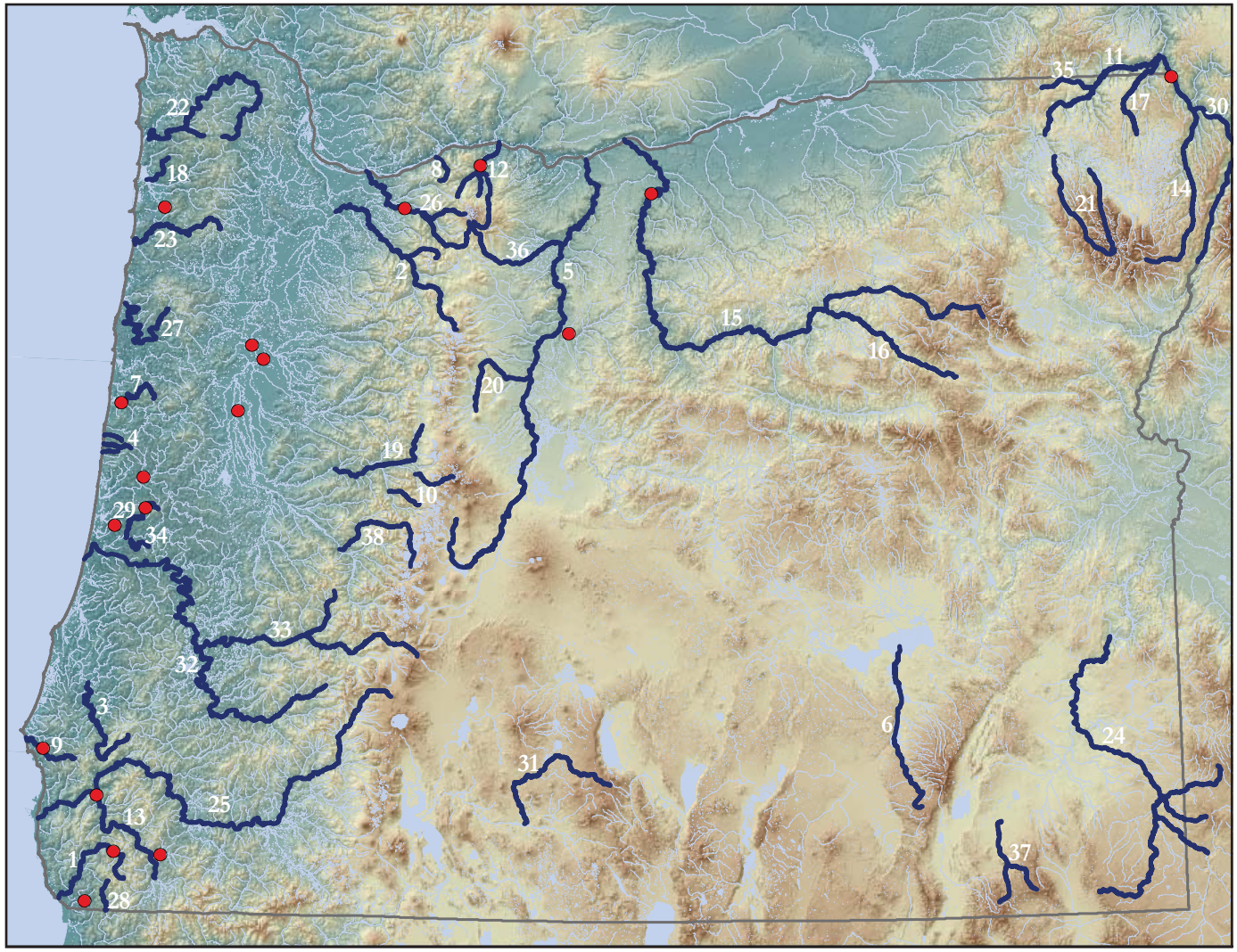
To analyze these criteria for rivers West-wide, data were obtained and tabulated for hundreds of rivers on a state-by-state basis. The resulting state-by-state tables became the integral foundation for evaluating and ranking waterways for the WRC survey. Each table lists a large number of high-quality 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.

Oregon's Great Rivers: List



WRC Oregon Project Locations

Oregon Great Rivers

1 Chetco River
2 Clackamas and Roaring Rivers
3 Coquille River, South Fork
4 Cummins, Rock, and Tenmile Creeks
5 Deschutes River
6 Donner und Blitzen River
7 Drift Creek
8 Eagle Creek
9 Elk River with North and South Forks
10 French Pete and Separation Creeks
11 Grande Ronde River, lower
12 Hood River
13 Illinois River
14 Imnaha River and South Fork
15 John Day River and North Fork
16 John Day River, Middle Fork
17 Joseph Creek
18 Kilchis River
19 McKenzie River, upper
20 Metolius River
21 Minam and Lostine Rivers
22 Nehalem and Salmonberry Rivers
23 Nestucca River
24 Owyhee River and Middle and North Forks and West Little Owyhee
25 Rogue River
26 Sandy and Salmon Rivers
27 Siletz River
28 Smith River, North Fork (in California's Smith River basin)
29 Smith River, North Fork (in Umpqua River basin)
30 Snake River in Hells Canyon
31 Sycan River
32 Umpqua River with South Fork
33 Umpqua River, North, and Steamboat Creek
34 Wassen Creek
35 Wenaha River
36 White River
37 Whitehorse and Little Whitehorse Creeks
38 Willamette River, North Fork of Middle Fork