Wallowa-Whitman National Forest
Wild and Scenic River Inventory Documentation
Last Updated 03/25/2010

BIG SHEEP CREEK

A suitability study was conducted on Big Sheep Creek in the Wild and Scenic River Study report and final legislative environmental impact statement for eight rivers administered by the Wallowa-Whitman National forest. In that study, Big Sheep Creek was not found suitable as a Wild and Scenic river. Given this finding of unsuitability, this stream is no longer considered eligible, regardless of the presence of outstanding remarkable values.

Location: This study focuses on the potential eligibility and classification of Big Sheep Creek from its headwaters to the Imnaha Wild and Scenic River Boundary (near the confluence of Big Sheep Creek and the Imnaha River, Section 20, T. 1 N., R. 48 E., W.M.). The current boundary of the Imnaha Wild and Scenic River incorporates 1/8th of a mile of Big Sheep Creek.

River Mileage:
Studied: 49.1
Eligible: 49.1

Eligibility
Determination of Free-flow:
The study segment contains two small, 3- to 5-foot diversion dams which are used seasonally to divert water for irrigation and power generation (see Fisheries and Water Development sections). Despite these low dams or diversion works, ***the river is found to be free-flowing.***

SCENERY
Determination of Outstandingly Remarkable Values: Big Sheep Creek begins above 8,000 feet on the eastern edge of the Eagle Cap Wilderness in the Wallowa Mountains and flows for 40 miles to the Imnaha River. The upper portion is composed of the North, Middle, and South Forks, which are respectively, 2, 4, and 3 miles in length. The three forks combine near the Wilderness boundary to become Big Sheep Creek. The setting for these three forks is above timberline, with glaciated headwalls. This quickly gives way to stands of subalpine fir, Engelmann spruce, and whitebark pine, interspersed with mountain meadows. However, over 50 percent of the Engelmann spruce in this area has been killed by insect and disease outbreaks.

This is an area where winter snows dominate the landforms for over half the year. The forks follow a steep 20 percent gradient over small waterfalls and bouldery white water rapids as they descend from the mountains. The Middle Fork however, flattens out for several miles into a broad meadow dotted with bogs and small lakes. Summer brings an impressive display of wildflowers to the upper drainage, especially near Bonny Lakes.

Access to the wilderness portion of Big Sheep is by trail up the North Fork or Middle Fork from

the Wilderness Trailhead off of the end of Forest Service Road #100. Scenery is excellent of these trails as one climbs into Big Sheep Basin.

The river then leaves wilderness and flows on a much gentler gradient through several miles of Engelmann spruce, subalpine fir, and lodgepole pine forests. This area is part of the 1989 Canal lightning fire which killed about 50 percent of the timber in the corridor from the wilderness boundary to Lick Creek. The snow capped peaks and surviving green forests, contrast with black skeletons of burned tress. Just below Salt Creek the river flattens out even more. Here, it takes on a character more typical of eastern Oregon rivers as it enters the lower elevation basalt-dominated plateaus surrounding the Wallowa Mountains. Big Sheep Creek cuts a 2,000-foot-deep, 2½-mile-wide canyon through the basalt plateau. Mixed conifer forests of Douglas-fir, grand fir, western larch, and park-like old growth ponderosa pine cover the canyon slopes. By this time, Sheep Creek has become 25-40 feet in width and several feet deep. The river floodplain widens from 100 feet to 600 feet.

Two miles above Carrol Creek, the river leaves the National Forest and enters private land. The area is characterized as a basalt canyon covered by expansive grasslands composed of Idaho fescue and bluebunch wheatgrass. This is interspersed with scattered ponderosa pine/bluebunch wheatgrass communities in moist sheltered pockets on the northwest facing sites, and Douglas-fir/Rocky Mountain maple/ninebark communities in moist north and northeast facing sites. Fields adjacent to the creek are covered by meadows of Kentucky bluegrass. The creek passes small cabins and fields used for grazing, which give way to ranches, and hay pastures in the lower reaches. These developments provide a pleasing ranch-oriented pastoral setting that blends well with the timbered stringers and layered basalt rimrock that dominate the canyon walls. Paved State Highway 350 parallels Big Sheep Creek for the last 4 miles to its mouth, passing more ranches and some residences.

Visitors can enjoy views of the middle and upper portions of the creek and canyon from Forest Service Roads #39, #100, #3930, and #3940. However, most of the lower half of the canyon is private land and is generally not seen since it is closed to public access. FS Road #39, part of the Wallowa Mountain Loop of the Hells Canyon National Scenic Byway System, crosses the upper study corridor just below the Wilderness boundary, and provides several scenic vistas in the upper watershed.

The diversity of vegetation is somewhat lacking in the reaches below Wilderness. The natural physical characteristics of the watershed have been altered by human-caused activities. Timber harvesting and related activities, road construction and maintenance, water withdrawals, rural residences, ranching, grazing, fire management activities, dams, bridges, power lines, fires, and firewood harvest do have an impact on the scenery in the drainage. Probably the most noticeable human impact along Big Sheep Creek are the road cuts and fill slopes which are visible from the river for most of its length.

A 1984 visual resource inventory of the area determined the wilderness portion of Big Sheep Creek possesses “Class A – Distinctive” landscape variety. The remainder of the river drainage was determined to possess “Class B – Common” landscape variety. Recent fires and insect outbreaks have increased the number of dead and dying trees in the study corridor. This, plus the impacts of construction (outside wilderness), and the visibility of other modifications, has had a temporary but significant impact on scenic values in the study corridor.

> **Finding:** Landscape elements of Big Sheep Creek combine to create an overall pleasing effect to the casual observer. Although the Wilderness portion of Big Sheep is listed as

"distinctive" by the visual resource inventory, landscape features within the uppermost reaches of the study corridor are similar, but not as varied as the many Wilderness streams draining the Wallowa Mountains. The peaks are smaller, stream gradients gentler, views not quite as outstanding, and thus, the area not as popular as the other drainages in the Wilderness. Visual features are not notable or exemplary, nor are there are there major attractions in the area.

The middle and lower reaches are typical of northeastern Oregon's basalt plateaus and have numerous cultural modifications as well. Scenery is extremely important to the recreational values of the area, and thus requires special consideration in the planning of future management activities in the study corridor; however, ***scenery is determined not to be an outstandingly remarkable value on Big Sheep Creek.***

RECREATION

Determination of Outstandingly Remarkable Values: The lower portions of Big Sheep Creek, below Carrol Creek, are privately owned. The area between State Highway 350 and Coyote Creek is closed to public access. Very little public recreation occurs here except for some hunting with permission of the landowner.

The upper portion of Big Sheep Creek above Carrol Creek provides a variety of recreational opportunities. Recreation activities include hunting, hiking, dispersed camping, scenic driving, cross-country skiing, snowmobiling, horseback riding, fishing, berry picking, mushroom, and firewood gathering. The wilderness portions are the most popular and provide opportunities for solitude and pursuing activities in a primitive setting.

The majority of the study corridor in this section, outside of Wilderness, is accessible by road. State Highway 350 parallels Big Sheep Creek for the first four miles above its confluence with the Imnaha River. A low-standard road parallels the creek from Hwy. 350 to FS Road #3940. A portion of this road once served as a county road, but otherwise, this segment is inaccessible to the public unless landowner permits. FS Road #3940 parallels the creek for several more miles before it leaves the canyon. FS roads #3900-100, #3900-140, and a 4-wheel drive spur off of #3940 parallel the creek for almost its entire length to the Wilderness boundary. Big Sheep Trail (FS #1800), also follows along the river and provides access from the end of FS Road #3900-140 to Road 3940. The upper roaded portion of the drainage has excellent access from Joseph, Oregon off paved FS Road #39. The wilderness section is accessible from a trailhead off the end of FS Road #3900-100 by the Tenderfoot Wagon Road (FS Trail #1819), the Bonny Lakes Trail (FS #1802), and the McCully Creek Trail (FS #1812).

FS Road #39 and Hwy. 350 are part of the Wallowa Mountain Loop of the Hells Canyon National Scenic Byway. They provide excellent opportunities for interpreting the history, cultural resources, and natural resources in the area. A rest area with an interpretive sign is planned in the study corridor along Hwy. 350 near Imnaha to interpret the geology of the lower Imnaha River Canyon. The river is not floatable due to rocks, shallow depth, and low flows. There are no developed campgrounds in the study corridor. Dispersed camping in open areas and flat spots along the middle and upper portion of the river is popular until late fall.

Upstream from Carrol Creek, camping, picnicking, driving for pleasure, and fishing activities contribute to moderate use levels during the summer. Heaviest use in the study corridor occurs during the hunting season (August-November).

The study corridor contains one of the heaviest used winter sports areas on the Wallowa-

Whitman National Forest. A Sno-Park under the State of Oregon Sno-Park system has been developed at Salt Creek Summit, 1½ miles north of the study corridor. Visitors from throughout Oregon, Washington, and Idaho ride snowmobiles and cross-country ski into the Big Sheep drainage. An outfitter/guide has a camp established along FS Road 3900-100 in the Big Sheep drainage. Clients ski in from Salt Creek Summit to the camp and explore the forks of the Big Sheep Creek drainage during day trips. When snow-covered, FS roads 39, 3940, 3915-023, 3900-070, 3900-090, and 3900-140 are designated snowmobile routes.

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> **Finding:** The quality, variety, and year-round recreational opportunities available along middle and upper Big Sheep Creek make it a popular area with local and regional visitors. The study corridor is an excellent area for viewing wildlife such as Rocky Mountain elk, mule deer, bobcat, cougar, and bear. The area includes a National Forest Scenic Byway and a variety of winter sports opportunities. ***Recreation is an outstandingly remarkable value on Big Sheep Creek upstream from Carrol Creek.*** Below Carrol Creek, private ownership of most of the canyon bottom greatly limits recreation. ***Recreation is not an outstanding remarkable value on Big Sheep Creek downstream from Carrol Creek.***

WILDLIFE

Determination of Outstandingly Remarkable Values: *Populations:* Many species of wildlife typical and unique to the region inhabit the Big Sheep Creek corridor, including elk, deer, cougar, black bear, bobcat, wolverine, marten, blue and ruffed grouse, and a variety of owl, raptor, bat, and woodpecker species.

No threatened or endangered wildlife species have been documented within the study corridor. The black rosy finch and spruce grouse (Regional Forester's Sensitive Species List) have been documented in some of the higher elevation portions.

Habitat: Wildlife habitat within the Big Sheep corridor is varied; ranging from high-elevation meadows and forests, to mid-elevation ponderosa pine forests, and ultimately to lower elevation grassland. The area could serve as a migration corridor for big game and songbirds. Much of the study corridor is roaded. Many houses and ranches are found along the lower portion of the river. The entire study corridor has received past land management disturbance (grazing, recreation).

> **Finding:** Big Sheep Creek does not contain any populations of threatened or endangered wildlife species. The diversity of species within the drainage does not necessarily rival any of the other neighboring drainages. Although the riparian habitat within the study corridor is important to wildlife, it is not of exceptionally high quality due to the amount of human disturbance. With these conditions in mind, ***wildlife is not an outstandingly remarkable value.***

FISHERIES

Determination of Outstandingly Remarkable Values: Big Sheep Creek supports populations of fish species that are regionally and nationally important. Big Sheep Creek is unique in several ways. For example, bull trout, which is an indicator of high quality, clean and cold water habitat, is represented in this river by a healthy population. Another example is the unique spring/summer Chinook salmon run which remains in the ocean one to two years longer than most Oregon salmon runs. The result is the largest body size spring Chinook salmon in the Snake River System.

Chinook Salmon
On May 22, 1992, the National Marine Fisheries Service (NMFS) officially listed the Snake River spring/summer Chinook salmon as threatened species under the Endangered Species Act. The listing was recently changed to “endangered.” Big Sheep Creek was designated critical habitat for Snake River spring/summer Chinook salmon as interpretation of Federal Register Notice dated December 28, 1993.

Currently, a total of 35.6 miles of Chinook spawning habitat exists in the Big Sheep Creek Watershed. Spring/summer Chinook salmon spawn in the Imnaha River, Big Sheep Creek (32.3-mile section from the confluence with Little Sheep Creek to the confluence with Salt Creek), and in Lick Creek (3.3-mile section from the confluence with Big Sheep Creek to the crossing of FS Road # 39). These spawning areas are based on Region 6 Stream Surveys in 1989, 1991, and 1992, and on areas monitored by Oregon Department of Fish and Wildlife (ODFW) each year during redd counts. ODFW has conducted spawning ground counts on Big Sheep Creek, Lick Creek, and Imnaha River for spring/summer Chinook salmon from the early 1960s to the present. A total of 41.6 miles of Chinook rearing habitat exists in the Sheep Creek Watershed. Rearing habitat for spring/summer Chinook salmon occurs in the Imnaha River, Big Sheep (38.3-mile section from the confluence of Big Sheep Creek with the Imnaha River to the confluence with South Fork Big Sheep Creek), and in Lick Creek (3.3-mile section from the confluence with Big Sheep Creek to the crossing of FS Road #39). These areas are based on snorkel counts and habitat surveys conducted by ODFW and the Forest Service.

Historically, spawning and rearing habitat for spring/summer Chinook salmon occurred approximately two stream miles farther up Lick Creek and might have occurred in portions of Little Sheep Creek and Middle Fork Big Sheep Creek (Thompson & Haas 1960).

Spring/summer Chinook salmon are native to the Imnaha River Basin. The Imnaha River Basin was historically an important producer of spring/summer Chinook salmon. Prehistoric and early historic run sizes are unknown, but it is estimated that 6,700 spring/summer Chinook salmon entered the Imnaha River Basin annually prior to the Snake River darns (Northwest Power Planning Council, 1990). Current run sizes in the Imnaha River Basin have been drastically reduced. The estimated run size for the Imnaha River in 1992 was 1,067 spring/summer Chinook salmon. In 1992, Sheep Creek Watershed had an estimated run size of seven fish.

The trends of Chinook salmon populations within Sheep Creek watershed can be estimated from redd counts within ODFW index areas. From 1964-1973, an average of 65.4 redds were counted within ODFW index areas in the Sheep Creek watershed. From 1974-1978, redd counts dropped to an average of 28.4 redds. From 1979-1992, redd counts dropped dramatically to an average of six redds. These numbers indicate a downward population trend to a current low population of Chinook within the Sheep Creek watershed.

Depressed run sizes in Sheep Creek watershed reflect the interaction of variable environmental conditions, such as oceanic productivity and weather patterns, and a variety of management activities. Four major management activities that have contributed to the decline of Chinook salmon are hydroelectric development and operation, fish harvest, fish hatchery influences on disease and genetic fitness, and fish habitat conditions (Leonard, 1993). It is also important to realize that a large amount of the Chinook habitat in good condition within the watershed is currently not being utilized because of management activities affecting their life history beyond the realm of Sheep Creek watershed.

The Lower Snake River Compensation Plan calls for the release of 490,000 spring Chinook salmon smolts each year when full hatchery production is reached. Native stock salmon are expected to be used for the present hatchery supplementation programs.

Steelhead/Rainbow Trout
Summer steelhead is also an important anadromous fish species in the Imnaha River system. Prehistoric and early historic run sizes are unknown, but it is estimated that 4,000 steelhead were entering the sub-basin prior to construction of the four lower Snake River dams. The escapement is currently estimated at 1,000. Under present hatchery plans, native stock are expected to be used for the present and planned hatchery supplementation programs, which call for the release of 330,000 smolts annually. A wild stock component will continue to make up a portion of the hatchery program. In addition, Big Sheep Creek supports native rainbow trout populations.

Summer steelhead *(Oncorynchus mykiss)* is presently listed on the Regional Forester's and the state's Sensitive Species lists.

Bull Trout
On May 10, 1993, the U.S. Fish & Wildlife Service officially announced a 90-day finding on a petition to list the bull trout *(Salvelinus confluentus)* under the Endangered Species Act. In 1994, the U.S. Fish & Wildlife Service commenced a formal review of the status of the bull trout and decided that federal listing was warranted but precluded due to other species being a higher priority for listing.

Bull trout populations in Big Sheep Creek consist of resident and fluvial populations. Resident adults do not migrate. Adults from fluvial populations are found in rivers and larger streams. Smaller tributaries act as breeding grounds and rearing areas for juveniles. Historically, Big Sheep consisted of resident and fluvial bull trout populations contiguous above Wallowa Valley Improvement District canal for about five miles. At present there are resident and fluvial populations within Lower Big Sheep Creek (extending in summer from approximately River Mile 27 to 37 on Big Sheep Creek, from River Mile 0 to 7 on Lick Creek, including the lower 1.5 miles of Salt Creek); an isolated resident population of bull trout exists at Big Sheep (above the diversion at the Wallowa Valley Improvement District canal) for approximately five miles of habitat; and resident and fluvial populations within Little Sheep Creek and this distribution includes portions of the Wallowa Valley Improvement Ditch.

Density estimates performed by ODFW in 1992 at Lower Big Sheep Creek suggest moderate to high densities of bull trout in Lick, Salt, and Big Sheep Creek. Density estimates performed by the ODFW in 1992 at one area within Big Sheep suggest moderate densities of bull trout above the diversion.

Sedimentation rates may have increased somewhat due to the Canal Fire, logging, road building, and farming/ranching practices, but this is not the major factor limiting production of spring Chinook salmon, and steelhead trout. Effective fish cover, sediment, large woody material, pools, peak stream flows, and bank stability are not limiting production of present spring Chinook, and steelhead trout. Low stream flows, temperature and stream shade/canopy cover may limit production of these species in Big Sheep watershed. This is supported by recent stream surveys which indicate that the existing conditions of the limiting factors are rated fair within Chinook and steelhead habitat of the Sheep Creek watershed.

Bull trout production is likely affected by decreased rearing areas, which are probably due to

temperature and sediment increases in the lower reaches of Big Sheep Creek. The Wallowa Valley Improvement District canal limits bull trout access to the upper reach of Big Sheep Creek. The unscreened diversion at the Wallowa Valley Improvement District canal creates a problem for bull trout; fish that drop below the diversion are lost to the upper population and become stranded in the canal during the winter. The diversion is a passage barrier to migratory bull trout from the lower reach of Big Sheep Creek.

Land and water uses have had an impact on water quantity and quality. The Wallowa Valley Improvement District is an irrigation withdrawal project where 162.6 CFS is the allowable water right. The diverted water is removed from the Big Sheep watershed and diverted to the Wallowa Valley. The ditch diverts water from Big Sheep Creek, Little Sheep Creek, Salt Creek, Cabin Creek, Redmont Creek, Canal Creek, Ferguson Creek, and various nameless drainages that it intercepts. Other irrigation practices within Big Sheep Creek are generally limited to hay fields that are located on the basalt terraces.

Fish and wildlife habitat improvement projects began in 1989 in response to the Canal Fire. Riparian plantings of native deciduous shrubs and trees and fence exclosure construction occurred on several streams in the watershed to rehabilitate these fire burned sites. Periods of limited road use and restrictions on firewood gathering have been implemented to allow habitat to recover to provide benefits to fish and wildlife species. In addition, livestock grazing has been deferred in the Divide Allotment until 1995 to allow the habitat to recover.

Habitat potential is good to excellent for the watershed. The desired future conditions or habitat potential for Big Sheep will be met through a stream and riparian restoration program, education and incentives for improved private land management, and continued resource management that manages for riparian and watershed objectives. In addition, future development of strategies to address the screening and passage needs of bull trout at the Wallowa Valley Improvement District diversion will need to be performed.

> **Finding:** Fisheries values in Big Sheep Creek are found to be outstandingly remarkable due to the presence of federally listed endangered spring Chinook salmon; Regional Forester's and State Sensitive summer steelhead trout; native rainbow trout; and category 1 established bull trout populations. In addition, ***fisheries values in Big Sheep Creek are found to be outstandingly remarkable*** in that Big Sheep Creek supports populations of fish species that are regionally and nationally important, and due to its great potential for high-quality fisheries habitat for indigenous stocks.

HERITAGE (Historic):

Determination of Outstandingly Remarkable Values: Much of the Big Sheep study corridor has not been inventoried for the presence of archaeological resources. Big Sheep Creek is a vital part of Nez Perce tribal history. The confluence of Big Sheep and the Imnaha River was a village site, meeting place, and fishing camp for the Nez Perce Tribe. Village sites were scattered along bottom of the Imnaha and Big Sheep Creek. It is certain that tribal members traveled farther upstream along Big Sheep in the study corridor for hunting, fishing, and gathering.

There are numerous ranches in the lower and middle sections of the study corridor that were homesteaded by Euro-Americans after the 1870s. Homesteading declined by World War I and a process of consolidation began. The economy of the post-war period favored larger operations. Inflation and a changing marketplace forced ranchers to expand or to sell out. By the 1930s this

led to a much smaller number of sheep and cattle operations.

Current land use patterns show few noticeable changes from the mosaic of farms and ranches that developed between World War I and World War II. Properties still change ownership but many descendants of the original settlers remain in the Big Sheep Valley. While some new structures have appeared, many original barns and houses remain. Few changes to the lifestyle have occurred over time due to the character of the river canyon itself. The narrow canyon, rugged terrain, and close proximity between the summer and winter ranges, have not been conducive to many of the modern developments.

> **Finding:** The Big Sheep Creek study corridor plays a vital role in Nez Perce tribal history, but there few sites in the study corridor of historical interest. The area contains numerous ranches, rural residences, and old homesteads, but these sites are not notable in the geographic region or in terms of significant events, people, or activity. Therefore, ***the finding is that Heritage (Historic) Resources do not warrant outstandingly remarkable value status in the study corridor.***

HERITAGE (Pre-historic):

Determination of Outstandingly Remarkable Values: Big Sheep Creek is a vital part of Nez Perce tribal history. Until the 1870s, the Nez Perce Tribe occupied the lower Big Sheep Valley. The confluence of Big Sheep Creek and the Imnaha River is a documented, ethnographic Nez Perce winter village. As well as providing a place for winter residence, the area was used as a meeting place and fishing camp. Other camps were scattered along bottom of the Imnaha and Big Sheep Creek. The presence of hunters and gathers within the study area is substantiated by the presence of two documented, prehistoric seasonal hunting camps. In addition to the Nez Perce, other tribes visited the area for hunting, fishing, and gathering purposes.

One of the unique attributes of the lower Big Sheep Canyon was, and is, the close proximity of an ideal winter range (mild winter) to an ideal summer range (upper Big Sheep Creek) all within the same drainage. This ideal situation also exists vertically within the canyon, including the uplands above the canyon on either side. The yearly cycle for the Nez Perce Indians was to winter in the lower Imnaha and Big Sheep Canyons and move up into the Wallowa Mountains, which include the upper Imnaha and Big Sheep rivers, or move vertically up the canyon to the uplands for the summer.

After the Nez Perce Tribe acquired horses, the Imnaha and Big Sheep valleys became additionally important for wintering their livestock. The excellent productivity of this canyon grassland, in combination with the availability for grazing during the winter annually sustained the tribe's extensive horse herds through the winter.

Through trial and error the early homesteaders soon learned, as the Nez Perce had, that the best use of these drainages was to use the lower valleys for winter range and the upper valleys for summer range. What developed is a historic land use pattern which remains virtually unchanged today.

Much of the Big Sheep study corridor has not been inventoried for the presence of archaeological resources. Those areas that have been surveyed were found to contain a dense concentration of prehistoric sites. It can be safely assumed that many more sites are yet to be discovered. An Indian burial ground (of prehistoric origin) is located along the lower portion of the Big Sheep study corridor and has been listed on the National Register of Historic Places.

Finding: Extrapolating from the known sites that are either named to the National Register of Historic Places or, are eligible to be named, the Big Sheep study corridor contains a unique concentration of prehistoric sites. As a consequence of the known cultural resources present in the study corridor, and surely to be strengthened by future discoveries, this ***finding has determined that Heritage (Prehistoric) Resources are an outstandingly remarkable value.***

GEOLOGY:

Determination of Outstandingly Remarkable Values: Big Sheep Creek originates in the glaciated Wallowa Mountains. The upper valley is U-shaped, and classic alpine glacial features such as cirques, carved peaks, lakes, cliffs, and pinnacles, are visible but not as numerous as other portions of the Wallowas. Elongated carve knobs, called roche moutonnees, are found on the valley walls parallel to the direction of the glacier movement.
The predominant rock types in the headwaters area are basalt lava from the Columbia River group, and the massive, Late Triassic age Martin Bridge limestone. The limestone shows some deformation and re-crystallization into marble, related to the emplacement of the Wallowa batholith. The limestone produces a fine calcite gravel that is rapidly eroded from the steep glaciated valley walls.

Vast basalt lava flows of the Columbia River lavas covered much of the Blue Mountain region, including the Big Sheep drainage, in the Middle Miocene. Very fluid basaltic lavas begin to erupt and pour from cracks and fissures in northeastern Oregon, southeastern Washington, and western Idaho. Basalt poured from many simultaneously erupting fissures, covering most of the older landforms. The average thickness of the Yakima basalt layers was 50 to 100 feet thick, with pooling occurring in some areas to a thickness of 200 feet or more. Basalt dikes, which fed younger eruptions are exposed in the canyon of middle and lower Big Sheep Creek.

Melting waters and debris from Pleistocene glaciation greatly accelerated the erosion of the canyon of Big Sheep Creek, exposing layers of basalt, red scoria, and interbedded sedimentary rocks. The typical lava flow layering and columnar basalt 10 to 100 feet thick are exposed in the middle and lower canyon. Interbedded sedimentary rocks consisting of mudstone, clay, lignite, and sandstone can be seen between some lava layers. Plant fossils may be found in the interbeds.

Rocks older than the Miocene Columbia River basalts (pre-Cenozoic) represent displaced fragments of volcanic, island arc, plutonic, and oceanic crust, and sediments which were accreted (welded) to the Mesozoic Continental margin by folding and thrust faulting.

The study corridor contains no mining claims or known economic mineralization. The portion of the study corridor within the Eagle Cap Wilderness has been withdrawn from mineral entry.

Finding: The geology of Big Sheep Creek is an interesting resource of this rugged mountain and canyon country. It has been an attraction to several generations of residents. Much of Northeast Oregon geology is typified by Columbia River basalt canyons, exposed by the down-cutting of rivers. The middle and lower portions of Big Sheep Creek lie in a 2,000-foot-deep canyon, but the canyon is typical of basalt canyons in the area. The geologic features in the upper portion in the Eagle Cap Wilderness are similar to the entire Wallowa Mountains area. The geology of Big Sheep Creek is typical of the region, and therefore ***does not merit a finding of outstandingly remarkable.***

BOTANICAL/ECOLOGICAL:

Determination of Outstandingly Remarkable Values: The study section of Big Sheep Creek considered in this assessment is located between approximately 2,000 and 8,600 feet in elevation. Big Sheep Creek begins high in the Wallowa Mountains, as the South, Middle, and North Forks. It travels two to four miles through the Eagle Cap Wilderness (depending on the fork) where ecosystems are relatively undisturbed and natural processes dominate. In the high elevations, the area is dominated by wet and dry meadows of sedge, rush, alpine grass, and heather. Stringers of whitebark pine and subalpine fir reach these elevations. As the stream progresses down the valley from the headwaters toward the Wilderness boundary, the true subalpine forests of whitebark pine, subalpine fir, and heathers gradually change to high elevation forests of Engelmann spruce, subalpine fir, lodgepole pine, and grouse huckleberry. Forests are interspersed rocks and talus slopes in the unstable snow chutes, bunchgrass slopes, and wet meadows of sedge, rush and forb species in the valley bottom.

At the Wilderness boundary the alpine meadows disappear and the area becomes an open forest of Engelmann spruce, subalpine fir, and lodgepole pine forests. This area from just above the wilderness boundary downstream to Hass Creek was densely timbered but the 1989 Canal wildfire killed about 50 percent of the timber.

Vegetation in the middle portion is dominated by mixed conifer forest of Douglas-fir, grand fir and western larch. Below 4,000 feet, ponderosa pine becomes more dominant as does the percentage of grassland habitat with Idaho fescue and bluebunch wheatgrass providing the greatest cover. Riparian vegetation includes deciduous tree species such as white alder, black cottonwood, western birch, aspen, box elder, serviceberry, hawthorn, cascara buckthorn, and willow. Human activities are dominant on the landscape and include logging and livestock grazing. A shift in species composition has occurred, particularly below 4,000 feet in elevation, as a result of these activities. Most notable is the loss of native forbs and grasses in the riparian zone. Cheatgrass, Kentucky bluegrass and barnyard grass have largely replaced the native species. Several noxious weeds have also been introduced into the river corridor. There are some patches of yellowstar thistle and Scotch thistle on the private lands and knapweed on both the private and National Forest System lands in the study corridor.

Plant inventories have been conducted on some National Forest portions of the drainage. Wallowa Primrose, a Forest Service sensitive species, is known from areas adjacent to the study corridor. Habitat for this species is non-forested areas with shallow soils over unfractured basalt. These areas tend to be saturated in the spring, drying out in early summer. There is potential habitat within upland portions of the study corridor.

The extent and condition of the riparian communities has been affected somewhat by the roads that parallels the creek nearly its entire length outside of wilderness. Continuing recreational use of the streamside meadows for camping, fishing, and picnicking also has some affect on the riparian communities.

> **Finding:** While the diversity of plant species and the number of plant communities found in the Big Sheep study corridor is notable, due primarily to elevation changes from the headwaters to the end of the study corridor, it is fairly typical of other rivers in the region. In addition, there has been a significant loss of native species (outside wilderness) due to human activity. ***The botanical and ecological values are not considered to be outstandingly remarkable for the Big Sheep Creek study corridor.***

TRADITIONAL USE/CULTURAL VALUES:

Determination of Outstandingly Remarkable Values: Big Sheep Creek is included within the ceded boundaries of the Nez Perce Tribe. Archaeological surveys and historic records indicate that the area was used by the Nez Perce Tribe in prehistoric and historic times for village sites, fishing, hunting, and gathering. Other tribes such as the Shoshone and the Confederated Tribes of the Umatilla Indian Reservation (Cayuse, Walla Walla, and Umatilla Tribes) also occasionally utilized the area. Visits by Native Americans to the Big Sheep Creek area has diminished to a few visits each year.

> **Finding:** No extensive cultural resource inventory has been completed on Big Sheep Creek and no regionally unique sites (other than a burial ground) have been identified by the tribes at this time. However, there is much interest in nearly all the drainages in Northeast Oregon by various tribes as having special cultural value associated with their history and present-day activities. This is especially true for the Nez Perce Tribe. Also, those rivers having anadromous fish runs are of interest to all tribes. Traditional Use, Cultural Values are found to be important in the Big Sheep Creek study corridor. However, ***these values were not found to be outstandingly remarkable*** since they are fairly typical of other rivers in this region

CLASSIFICATION:

Eligibility Determination:

Big Sheep Creek meets the minimum eligibility requirements as specified by the Wild and Scenic Rivers Act. It is found to be free-flowing and current information supports the findings that three outstandingly remarkable values are present. These outstandingly remarkable values are Recreational (upstream from Carrol Creek), Fisheries, and Heritage (Prehistoric) Resources.

Water Resources Development

There are no impoundments in the wilderness study segment Big Sheep Creek. However, just below the Wilderness boundary, the Wallowa Valley Improvement District has a small dam which seasonally diverts up to 162.6 cfs from Big Sheep Creek at the mouth of South Fork. The diverted water is removed from Big Sheep to the Wallowa Valley.

The canal predates the Wallowa-Whitman National Forest; therefore, the Forest Service has no administrative jurisdiction over the use of the irrigation canal. State of Oregon water rights were issued to the Improvement District in 1905 and in 1919 to irrigate 6502 acres with a volume of 162.6 cfs during the irrigation season (April 1 to October 15). The water rights also allow about 20 to 30 cfs of water outside of the irrigation season to be diverted for watering livestock in the Wallowa Valley. Although water rights have been granted for larger volumes, the canal has a carrying capacity of about 90 cfs.

Water withdrawals from Big Sheep Creek occur for 59 other water rights equal to 57.53 cfs. Domestic wells provide water to the majority of the private residences in the Sheep Creek Watershed. Other water withdrawals are limited to irrigation for small hayfields. Total potential withdrawal from Big Sheep Creek amounts to 200.53 cfs from April 1 to October 15.

Six minimum instream flows, ranging from 25-55 cfs have been established from the confluence of Little Sheep Creek with Big Sheep Creek downstream to the confluence of Big Sheep Creek with the Imnaha that change depending on the time of year. These minimum instream flows were intended to protect aquatic life in the stream, but have a 1983 priority date which makes

them junior water rights and does not necessarily ensure that those instream flows are maintained. Rather, they protect that reach from future changes in diversion locations or amounts that would injure those instream water rights. They also count in water availability analyses conducted by the Oregon Water Resources Department.

Within the Eagle Cap Wilderness, the study segment of Big Sheep Creek qualifies for a classification of “Wild.” Outside of wilderness, one small dam, a major water withdrawal, several minor irrigation ditches warrant a classification of “Recreational.” Despite the diversions, dam, and water withdrawals, Big Sheep Creek remains generally natural and riverine in appearance and was determined to be free-flowing.

Shoreline Development
Big Sheep Creek from its headwaters to the Wilderness boundary lies entirely within the Eagle Cap Wilderness Area. Other than for three wilderness trails, there is little or no evidence of human activity in this segment. There is no evidence of past timber harvest and no on-going timber harvest.

From the Wilderness boundary to the Imnaha River Wild and Scenic study corridor (near the confluence of Big Sheep Creek and the Imnaha River), a substantial amount of human activity is present. Past and present activities on National Forest System land include timber harvesting, road construction and maintenance, firewood gathering, dispersed camping, habitat improvement activities, domestic livestock grazing, and water diversions.

On private land, similar activities have occurred, but include ranches, rural residences, irrigation ditches, power lines, and more roads, bridges, and stream fords.

Although some timber harvesting occurred in the watershed in small project areas prior to 1950, extensive large commercial harvest operations began in the 1950s. The type of timber cutting was selective harvest and partial removal of overstory trees. Regeneration cutting in small areas of ten acres or less began in the early 1960s and lasted for only a few years.

Partial cutting continued for the remainder of the 1960's until about 1972. A return to regeneration cutting began in 1972 on a large scale. Primarily shelterwood and seed tree type cutting occurred. In the late 1980s, dead and dying trees in some areas were harvested as a result of the Engelmann spruce bark beetle infestation. In 1989, a large wildfire prompted salvage of fire-killed timber on several thousand acres.

In the last two decades, with the recognition of harmful effects to stream resources, timber harvest techniques have changed to the use of skyline cable systems or aerial means to transport logs from the woods to roads. Skyline systems are used on steep terrain, and generally operate better when the logs are pulled uphill. Roads must be located near ridge tops to accommodate this system thereby reducing impacts to streams.

Timber harvest and road construction activities continue today at a variable rate on both the National Forest and private lands. The amount of timber removed and road construction has decreased from past levels. Generally, road densities in areas where timber harvest has occurred are higher than other areas of the watershed.

Historic use of the area for domestic livestock grazing occurred as early as the 1730s when Nez Perce Indians grazed horses in the main canyon. During the 1800s, settlers in the valleys and canyons grazed domestic sheep, cattle, and horses sometimes on a continuous basis. Areas in

the creek bottoms where mild winter conditions prevailed provided winter feeding areas for elk and deer and domestic stock.

Past cattle grazing has resulted in some stream bank disturbances, soil compaction, and a reduction in the amount and variety of upland and streamside vegetation. The effects of grazing are particularly evident around water sources such as springs, seeps, and some creeks. Domestic livestock grazing has decreased significantly since the early 1900s. Cattle use is the primary domestic grazing stock. Elk and deer also graze in the area.

Current management includes the use of allotments with individual pastures where animals are rotated through areas according to the season, available forage, and resource objectives. Activities occurring include spring developments in the uplands to lure livestock and wildlife away from riparian areas, and riparian planting and fencing to restore shading along streams. Projects have been identified to add large woody debris to stream channels and riparian areas to restrict livestock movement and use of riparian areas. The level of grazing allowed on grasses, forbs, and shrubs by livestock has been limited to protect riparian and rangeland resources. Utilization levels have been adjusted to account for the big game use in the area.

Fish and wildlife habitat improvement projects began in 1989 in response to the Canal Fire. Riparian vegetation on a portion of Big Sheep Creek was devastated due to the intensity of the fire. Riparian plantings of native deciduous shrubs and trees and fence exclosure construction occurred in the upper portion below the Wilderness boundary to rehabilitate fire burned sites. Habitat improvements for fish consist of two fences and riparian planting. The fences are 2.3 miles long and located on Big Sheep Creek and Carrol Creek. Planting of deciduous trees and conifers (14.5 miles) occurred inside and outside the study area on Little Sheep Creek, Owl Creek, Carrol Creek, Salt Creek, Hass Creek, and Big Sheep Creek to rehabilitate wildfire burned sites. One fence and one spring exclosure were also constructed in the study corridor in 1993.
Two special use permits have been issued for two power lines (10 miles) in the watershed. One is a high voltage power line which crosses the study corridor near Griffith Creek. The other services the many residents in the lower portion of the study corridor.

A portion of the Imnaha Cemetery is located within the study corridor near the town of Imnaha.

Big Sheep Creek, from its headwaters to the Eagle Cap Wilderness boundary is a pristine segment with little or no evidence of human activity except for trail construction and use; this warrants a classification of “Wild.” Below the Wilderness boundary to Carrol Creek, there is evidence of past and present timber harvest, livestock grazing, road construction, and recreation use. From just above Carrol Creek its confluence with the Imnaha River there is extensive evidence of a wide range, of human activity along the river. This includes, roads, hay fields, pastures, corrals, bridges, fords, fences, ranch houses, rural residences, a church, and in the lower portion powerlines and a portion of the Imnaha Cemetery. Thus, the section below the Wilderness boundary warrants a classification of “Recreational.”

Accessibility
From the headwaters to the Eagle Cap Wilderness boundary there are no developed roads. The area is accessible by several trails from the Tenderfoot Trailhead off the end of Forest Service Road #100.

Roads parallel nearly the entire segment below the Wilderness boundary. Paved State Highway 350 parallels Big Sheep Creek for the first 4 miles above its confluence with the Imnaha River. A

private road parallels the creek from Hwy. 350 to FS Road #3940, but the private road is only open to the public upstream from Coyote Creek. Graveled FS Road #3940 parallels the creek for several more miles before it leaves the canyon. Graveled FS Roads #3900-100, #3900-140, and a dirt 4-wheel drive spur off of #3940 then parallel the creek for almost its entire length to the Wilderness boundary. Big Sheep Trail (FS# 1800), also follows along the river providing access from the end of FS Road #3900-140 to FS Road #3940. Paved Forest Service Road #39 also crosses the study corridor in the upper portion.

The road prism on the private primitive road in the lower canyon confines the river in several places and a few spots have riprap along the bank. In the middle canyon, Forest Service roads parallel Big Sheep Creek but do not general confine it except at bridge crossings. There are over 10 bridge crossings and several road fords along Big Sheep Creek in the study corridor.

The lack of constructed roads in the headwaters area above the Wilderness boundary qualifies this segment for a “Wild” classification. Downstream from the wilderness boundary, roads parallel Big Sheep Creek most of the way to the Imnaha confluence. The roads are often visible from the river, and cross it many times. This warrants a “Recreational” classification for this segment.

Water Quality
The water quality of Big Sheep Creek from the headwaters to the Eagle Cap Wilderness boundary meets Oregon Water Quality standards. From the Wilderness boundary downstream to Owl Creek, Big Sheep Creek is on the 2002 Oregon Water Quality Limited Steams (303(d)) list for summer temperatures in excess of 50 degrees Fahrenheit for bull trout (DEQ, 2002). The final downstream portion from Owl Creek to the Imnaha Wild and Scenic River boundary is on the 303(d) list for summer temperatures in excess of 64 degrees Fahrenheit for steelhead rearing habitat, and temperatures in excess of 55 degrees Fahrenheit from August 1 to July 15 for spawning habitat.

Only the portion of Big Sheep Creek upstream of the Eagle Cap Wilderness boundary qualifies for a “Wild” classification. Downstream of the Wilderness boundary, Big Sheep Creek qualifies for both “Scenic” and “Recreation” classifications.

Classification Determination
The overriding determinant for classification decisions is the degree of naturalness, or inversely, the degree of evidence of man's activity in the river area. It is determined that from the headwaters of Big Sheep Creek to the Eagle Cap Wilderness boundary that the potential classification would be “Wild”; and from there downstream to the Imnaha Wild and Scenic River boundary, the potential classification would be “Recreational.”

Classification: 10 miles “Wild” 39.1 miles “Recreational”

DUTCH FLAT -VAN PATTON CREEK

A suitability study was conducted on Dutch Flat Creek and Van Patton Creek in the Wild and Scenic River Study report and final legislative environmental impact statement for Dutch Flat Creek, Killamacue Creek, and Rock Creek administered by the Wallowa-Whitman National forest. In that study, Dutch Flat Creek was found suitable as a Wild and Scenic river, however Van Patton Creek was not. Given these findings, Dutch Flat

will continue with eligibility and suitability status and Van Patton Creek will no longer be considered eligible, regardless of the presence of outstanding remarkable values.

Location: This study focuses on the potential eligibility and classification of Dutch Flat Cree and Van Patton Creek from the headwaters of Dutch Flat Creek just east of the Elkhorn Ridge of the Blue Mountains to the Forest boundary.

River Mileage:

Studied: 9.1 miles
Eligible: 9.1 miles

Eligibility

Determination of Free-flow:
A low dam was constructed several times at the same location on Dutch Flat Creek between 1895 and 1919. It utilized a terminal moraine to help form the lake. The dam never did hold for long, and little evidence of it remains. The predominant evidence of the dam is the washout that occurred just upstream from the Forest boundary when the dams failed. A low concrete dam was constructed on Van Patten Lake to augment stream flow for irrigation in late summer and early fall. It has been determined that the ***entire study reach of Dutch Flat Creek and the stretch of Van Patten Creek from its confluence with Dutch Flat Creek to the outlet from Van Patten Dam is free flowing and eligible for study.***

SCENERY

Determination of Outstandingly Remarkable Values: Dutch Flat Creek starts as small mountain streams just below the crest of the Elkhorn Ridge of the Blue Mountains. The Elkhorn Ridge is characterized by jagged peaks, cirque basins and subalpine lakes, precipitous streams, and deeply incised glaciated valleys.

From its headwaters, Dutch Flat Creek flows northeast out of the mountains en route to the Powder River Valley below. Mount Ruth, Chloride Ridge, Red Mountain, and Twin Mountain reach above timberline and dominate the surrounding skyline.

Dutch Flat Creek descends quickly through the alpine meadows near timberline and soon enters subalpine meadows and scattered stands of subalpine fir.

Panoramic views of the Dutch Flat Creek drainage are seen from several vantage points along the Elkhorn Crest National Recreation Trail as well as from other trails located high in the drainages. Middle-ground views of portions of these drainages are seen from Interstate 84 and Highway 30.

There are year-long, high-quality scenic values in the stream corridor, including good plant diversity, mountain meadows, and mountain vistas. The rocky and rugged Elkhorn Ridge is viewed from high in the drainage. Timber cover lower in the drainage limits visibility of mountain vistas.

The area includes diverse species of wildlife, including elk, mule deer, mountain goats, pileated woodpeckers, and a variety of other species that can sometimes be seen while traveling through the area. The plant diversity includes western larch, aspen, spruce, Douglas-fir, grand fir, lodgepole pine, ponderosa pine and subalpine fir, some of it being old-growth along the trail. In the upper reaches, there is outstanding scenery associated with rock forms.

Finding: Dutch Flat Creek System displays an overall natural and undeveloped character, except the portion below the Dutch Flat dam site where the failed dam caused channel scouring. Natural patterns created by topography and natural processes such as lightning fires, avalanches, and rock slides, dominate the landscape character. In general, cultural modifications are very minor in scale when compared to the entire landscape. ***The scenic values are outstandingly remarkable.***

RECREATION

Determination of Outstandingly Remarkable Values: The recreation quality is high for a semi-primitive motorized and non-motorized recreation experience due to the low density of users and undeveloped setting. Except for the historic mine and power line corridor, the area is in pristine condition. The majority of the visitors to Dutch Flat Creek are from the local area, although some people travel a considerable distance to hunt in these drainages.

The main recreation use in the corridors begins in late spring and continues into the late fall hunting seasons. Visitors come to the area primarily to hunt for big game, fish, camp, sightsee, view wildlife, hike, backpack, and horseback. Mountain bike use of the road and trails is a relatively new use that is increasing. The streams within the corridors are too small for boating. There is some winter recreation use.

Most of the study corridors are within the Twin Mountain Roadless Area, which encompasses most of the Elkhorn Ridge. The 60,000-acre-plus roadless area provides ample opportunities for solitude and experiencing a sense of self-reliance and adventure. The surrounding area also provides opportunities for a quality hunting experience in a remote setting. Recreation developments in the corridors are primitive and minimally developed, limited to trails, directional signs, foot bridges and trailheads. Trails connect to the Elkhorn Crest National Recreation Trail. This latter trail follows the crest of the Elkhorn Ridge offering views of the drainages. There are no developed campgrounds within the corridors along the streams, although many user-created campsites have been established over the years

Finding: Recreational opportunities include hunting, fishing, hiking, mountain biking, sightseeing, and horseback riding. Scenic values are yearlong and high quality in the stream corridor. The Dutch Flat Creek System offers a diversity of semi-primitive recreation opportunities. The corridor offers a remote, relatively primitive setting and low use rate. ***The recreation values are outstandingly remarkable.***

WILDLIFE

Determination of Outstandingly Remarkable Values: *Populations:* The drainage does not contain nationally or regionally important populations of indigenous wildlife species. The elk herd in this area contributes to the overall SBGMU big game population in terms of both numbers and productivity. Elk herd population dynamics have been influenced by a reduction in the number of older, mature bull elk, and the current approach by the ODFW includes protecting habitat degradation and increasing the number of cow elk tags to improve the overall bull to cow ratio. Continued loss of security habitat for big game could reduce hunter opportunities to harvest mature bull elk and mule deer. The big game herds in this area are not considered unique to the Blue Mountains. Other big game management units in the Blue Mountains contain elk and deer herds comparable or even more productive than the SBGMU. The area supports a wide variety of wildlife species due to the intact ecological characteristics provided by the relatively large, unroaded drainage. The drainage does not contain nationally or regionally

significant populations of indigenous wildlife species that are considered extraordinary or unique.

Habitat: High-quality wildlife habitat exists within this river corridor. Big game summer range with an abundance of satisfactory thermal cover-and excellent security habitat is provided. Forage availability may be a limiting factor for big game. Quality habitat for several PETS species occurs within the area including bald eagle and peregrine falcon nesting and foraging habitat, wolverine and lynx habitat, and habitat for a variety of other wildlife species that are listed as sensitive. There have been no verified sightings of these species in this drainage, but this area has had only limited surveys for such species.

> **Finding:** ***The area is not considered to contain any outstandingly remarkable wildlife values.***

FISHERIES

Determination of Outstandingly Remarkable Values: Dutch Flat Creek and its tributary Van Patten Creek provide good habitat for small resident brook trout. The streams do not appear to support any native or "sensitive" species of fish. Both streams have abundant pools and significant quantities of woody debris in and along their channels. Dutch Flat Creek supports a large population of brook trout to 10 inches in length. The fish are most abundant in low-gradient reaches of Dutch Flat Creek where habitat quality is particularly high. It is unclear whether redband or bull trout were historically present in the Dutch Flat drainage above the Forest boundary. Dutch Flat Creek is capable of providing an excellent fishing experience in a remote setting.

> **Finding:** ***Dutch Flat Creek does not contain outstandingly remarkable fisheries values.***

HERITAGE (Historic)

Determination of Outstandingly Remarkable Values: The Elkhorn Ridge was utilized in prehistoric times by members of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) for fishing, hunting, and religious-purposes. The corridors were periodically and seasonally visited by small groups from the Shoshone-Bannock, and Northern Piute. The study area for the three creeks is within CTUIR'S ceded boundaries. Although site-specific cultural resource surveys have not been conducted, it is likely that prehistoric sites exist.

This drainage did not receive the lasting attention of early prospectors and miners. It is likely that early trappers traveled the river corridor. Beyond these few pieces of information, historical accounts of activities in the Dutch Flat Creek system are limited.
Cultural resource surveys have not been conducted in the corridor; therefore, the existence of significant historic sites is not known. Cultural resource surveys will be completed prior to any potential ground-disturbing activities. Known and discovered sites are protected under existing statutes, regulations, and policies.

> **Finding:** The remains of one small cabin are located near the dam site on Dutch Flat Creek. While these historic resources are of significant interest, they are typical of those found throughout this area. Therefore, ***they do not meet the criteria to qualify historic heritage resources as an outstandingly remarkable value***

HERITAGE (Pre-historic)

Determination of Outstandingly Remarkable Values: The Elkhorn Ridge was utilized in prehistoric times by members of the CTUIR for fishing, hunting, and religious purposes. The corridor was periodically and seasonally visited by small groups from several cultural groups including the Shoshone-Bannock and Northern Piute. The study area for the Dutch Flat Creek system is within CTUIR'S ceded boundaries. Very few Native Americans still travel to the area to hunt, fish, camp, and gather, continuing the traditions established prior to the corning of Euro-Americans to northeast Oregon. Although site-specific cultural resource surveys have not been conducted, it is likely that prehistoric sites exist.

Since cultural resource inventories have not been completed in the Dutch Flat Creek system, it is undetermined what level of significance pre-historic use had in the corridor. Based on surveys conducted in other portions of the Elkhorn Ridge, it is apparent that the area was used by prehistoric cultures, and it is anticipated that prehistoric sites exist. In the meantime, known and discovered sites are protected under existing statutes, regulations, and policy. Cultural resource surveys will be completed prior to any potential ground disturbing activities.

> **Finding:** Because all significant drainages in northeastern Oregon were utilized by Native Americans, in absence of known rare, one-of-a-kind, or sites with unusual characteristics or exceptional human interest value(s), ***the prehistoric cultural values do not meet the criteria for outstandingly remarkable.***

GEOLOGY/HYDROLOGY

Determination of Outstandingly Remarkable Values: Geology: Dutch Flat and Van Patten Creeks have several outstandingly remarkable geologic features. These include an outstanding example of a terminal moraine with rocks faceted or striated by glacial action near the Forest boundary. The area contains excellent examples of glacial geology and Bald Mountain Batholith. From elevation 5,400 feet to the headwaters, the stream valley of Dutch Flat Creek is characterized by advancing and retreating glacial indicators that are textbook in quality and quantity.

Hydrology: The water in Dutch Flat Creek is in pristine condition. It is cool, clear and scenic. Dutch Flat Creek is a healthy stream with a stable channel that varies from a near-vertical bedrock reach immediately below the lake to a sand-bedded meadow reach at Dutch Flat. The high gradient reaches below Dutch Flat Lake are characterized by steep riffles and bouldery cascades. The low-gradient reaches have sandy gravel channels that meander across flats typically dominated by dying stands of spruce.

> **Finding:** The area displays excellent examples of glacial plucking, striation, and polish, and also displays exfoliation features that in some locations rival exfoliation features preserved in Yosemite National Park. Therefore, ***Dutch Flat Creek and Van Patten Creek were determined to contain outstandingly remarkable geologic and hydrologic features.***

BOTANICAL/ECOLOGICAL

Determination of Outstandingly Remarkable Values: Dutch Flat Creek corridor contains some species of plants that are on the Northwest Region sensitive plant list. They are not unusual in this mountain range or others in northeastern Oregon and will receive protection to

assure that management activities do not jeopardize the continued existence of sensitive species or result in adverse modification of their essential habitat under the standards and guidelines of the Forest plan. The plants, meadows, riparian areas, and plant associations are common in northeast Oregon. Suitable habitat exists for some threatened, endangered and sensitive species, but their existence has yet to be confirmed.

Plants which are on the Northwest Region Sensitive Plant List that occur in the upper reaches of Dutch Flat Creek include *Allium madidum* and *Lycopodium annotinum.* Another plant on the sensitive list known to be in the Van Patten drainage is *Geum rossii* var. *turbinatum.* One other species included on the Northwest Region Sensitive Plant List, *Corydalis caseana* var. *cusickii,* is likely to occur along the riparian corridor, but its existence has not as yet been confirmed. These species occur in other similar areas on the forest.

> **Finding:** ***The upper reaches of Dutch Flat Creek contain botanical/ecological outstandingly remarkable values;*** however, the remainder of Dutch Flat Creek and Van Patten Creek do not contain botanical/ecological outstandingly remarkable values.

CLASSIFICATION

Eligibility Determination: Dutch Flat-Van Patton Creek meets the minimum eligibility requirements as specified by the Wild and Scenic Rivers Act. It is found to be free-flowing and current information supports the findings that five outstandingly remarkable values are present. These outstandingly remarkable values are Recreational, Scenery, Geological, Hydrologic, and Botanical/Ecological.

Stream Study Segments

Segment 1: From the Forest boundary to the confluence with Van Patten Creek.

Segment 2: From the confluence with Van Patten Creek to its headwaters.

Segment 3: All of Van Patten Creek to the outlet of the dam on Van Patten Lake.

Water Resources Development

Dutch Flat Creek and its tributary Van Patten Creek are free of water impoundments. There is a low concrete dam at the lower end of Van Patten Lake, which augments natural flows in Van Patten Creek. Van Patten Lake was excluded from the study corridor because it is an impoundment. Discharge patterns are not entirely natural because of the released flows from Van Patten Lake.

Shoreline Development

Dutch Flat Creek and Van Patten Creek are essentially primitive with little or no evidence of human activity. There is no evidence of past timber harvest activity, and there is currently no livestock grazing.

Accessibility

Dutch Flat Creek and Van Patten Creek tributary are generally inaccessible except by trail.

Water Quality
The water in Dutch Flat and Van Patten Creeks is in pristine condition. It is cool, clear and scenic. Dutch Flat Creek is a healthy stream with stable channel that varies from a near-vertical bedrock reach to a sand-bedded meadow reach at Dutch Flat.

CLASSIFICATION DETERMINATION
The overriding determinant for classification decisions is the degree of naturalness, or inversely, the degree of evidence of man's activity in the river area. It is determined that from the Forest boundary to the confluence with Van Patten Creek, from the confluence of Van Patten Creek to its head waters, and all of Van Patten Creek to the outlet of the dam on Van Patten Lake that the potential classification would be "Wild".

Classification: Wild: 9.1

EAST EAGLE CREEK

A suitability study was conducted on East Eagle Creek in the Wild and Scenic River Study report and final legislative environmental impact statement for Eight Rivers administered by the Wallowa-Whitman National forest. In that study, East Eagle Creek was found suitable as a Wild and Scenic river. Given this finding of suitability, this stream will continue to be considered eligible and suitable until legislative action is taken considering designation.

Location: This study focuses on the potential eligibility and classification of East Eagle Creek from its headwaters in the Eagle Cap Wilderness Area to the Eagle Creek Wild and Scenic River Boundary (near the confluence of East Eagle Creek and Eagle Creek).

River Mileage:
Studied: 15.6 miles
Eligible: 15.6 miles

Eligibility
Determination of Free-flow:
The entire study segment, which contains no dams or diversion structures, is ***found to be free-flowing.***

SCENERY

Determination of Outstandingly Remarkable Values: The variety of landforms, water, color, and vegetation present throughout the East Eagle Creek drainage is one of the most attractive attributes of the river corridor. The headwaters originate high in a glacial cirque in the Eagle Cap Wilderness. From its beginning, below the slopes of Eagle Cap and adjoining ridges, the creek follows a steep gradient over small waterfalls and bouldery white water rapids as it descends from the mountains. Vegetation in the classic U-shaped glacial valley starts out at the higher elevations as grasses, mosses, and alpine tundra interspersed with a whitebark pine and stunted subalpine fir. The trees are small and sculpted by the wind. As elevation declines, fingers of subalpine fir and Engelmann spruce intrude into the meadows. Soon one is in dense stands of spruce and fir that give way to Douglas-fir, western larch, and grand fir at lower elevations. Interspersed throughout are stands of black cottonwood and quaking aspen.

Expansive views of the surrounding Wallowa Mountains are afforded from every meadow opening. Numerous avalanche chutes, talus slopes, landslides, waterfalls, and scoured rock outcrops create a highly diverse and dynamic landscape that vies for attention with the crystal-clear creek.

The valley floor becomes relatively flat and wide at the wilderness boundary, and for the last six miles, East Eagle Creek's rapid descent from the high mountains slows. Clear, blue-green pools alternate with rapids as the creek winds its way through stands of black cottonwood and yellow-barked ponderosa pine, interspersed with grassy meadows.

Below the wilderness boundary the East Eagle Creek valley is dominated by Granite Cliff on the west and Krag Peak on the east which tower 4,000 feet above the East Eagle Trailhead. Granite Cliff contains a striking granite face that rises abruptly 1,000 feet above the trailhead. The road paralleling East Eagle Creek offers unrestricted views of the creek in the immediate foreground and surrounding hillsides, and mountain views in the middle and background. Above the wilderness boundary, the landscape is dominated by glacial features that include hanging valleys with waterfalls spilling into the East Eagle valley floor, steep valley walls rising 2,000 feet, and glacial scouring visible on sheer granite walls.

Visitors can enjoy views of the wilderness portion from the East Eagle Trail that parallels the river from the wilderness boundary to its headwaters.

Throughout the corridor, seasonally abundant wildflowers color the stream banks, cliffs, and forest floor with splashes of red, purple, yellow, white, and blue in the spring and summer. Deciduous vegetation including black cottonwood, quaking aspen, ninebark, and bracken fern provide attractive contrasting fall colors. Western larch provides a dramatic color contrast in the forest in the late fall as they turn golden, and in the springtime as the new green needles emerge. Picturesque stands of ponderosa pines and other large diameter trees can be seen in places throughout the corridor.

Human impacts in the East Eagle Creek corridor are fairly limited and generally remain subordinate in the landscape. They include several dozen rustic-appearing summer homes on private in-holdings, mine structures, the road and two road bridges, a trail and trailhead, and several undeveloped dispersed camping sites along the river. Some incidental, thinning and light timber harvest has occurred on the private lands in the past. There have been several National Forest timber sales, prior to 1985, partially within or adjacent to the corridor; however, these activities were primarily salvage, and are virtually imperceptible from the river. Probably the most noticeable human impact along East Eagle Creek is the road cuts and fill slopes that are occasionally visible from the river. In spite of the continuing interest East Eagle Creek has received since before the turn of the century, the river corridor still presents an overall natural and pleasing landscape to viewers. In fact, the outstanding and unaltered scenery of East Eagle Creek attracted the attention of movie producers, who used the area as the main filming location for the movie *Paint Your Wagon*. In 1962, "No Name City" was constructed for filming on the banks of East Eagle near its confluence with Jack Creek.

> **Finding:** The East Eagle Creek study corridor possesses a great deal of diversity in landform, water, color, and vegetation notable in the geographic region. Some of the attractions that combine to create East Eagle Creek's scenic beauty are the glaciated landscape of the upper portion, the steep, forested canyon with numerous waterfalls in the middle portion, and the views of Granite Cliff and Krag Peak in the lower portion. In addition, there is the diversity of vegetation, including lush meadows, subalpine

fir/spruce, larch/Douglas-fir/grand fir, ponderosa pine forests, and grassy openings; and the variety of the stream's rapids, waterfalls, and deep pools. Even though the East Eagle Creek drainage has been a focus of human interest since the turn of the century, visual impacts due to human modifications are relatively minor, and the drainage still presents an overall natural landscape pleasing to forest visitors. Thus, ***the finding is that scenery in the East Eagle Creek corridor is an outstandingly remarkable river value.***

RECREATION

Determination of Outstandingly Remarkable Values: The East Eagle Creek corridor provides a wide variety of recreational opportunities. Based on field observations and use records, East Eagle Creek receives a considerable amount of use beginning with cross country skiing and snowmobiling (below the wilderness boundary). As soon as the snow melts in the spring the area is used for sightseeing, hiking, dispersed camping, fishing, and the residents of the private summer homes return. This use continues into the late fall when hunting for deer, elk, and grouse bring many more visitors to the area. A large portion of the visitors are from the local area, although some visitors come great distances to recreate in the East Eagle Creek drainage, drawn by the exceptional scenery, excellent fishing, clean water, and the broad range of recreational opportunities available.

Visitors travel to the area primarily to fish, hunt, and camp, sightsee, hike, or picnic. Dispersed camping associated with fishing, hunting, and prospecting is by far the heaviest use, evidenced by the numerous dispersed campsites within the corridor. Other recreation opportunities in the drainage include horseback riding, photography, nature study, wildlife viewing, berry and mushroom picking, and various winter sports such as cross country skiing and snowmobiling. Hazardous whitewater, waterfalls, and low seasonal flows preclude floating or kayaking opportunities. The Main East Eagle Trailhead serves as a major south side access route into the Eagle Cap Wilderness for visitors pursuing solitude and wilderness recreation opportunities and is the most heavily used trailhead on the Pine District.

The entire corridor is accessible by either gravel road or trail. A good quality gravel road parallels the river and ends at a trailhead just below the wilderness boundary. Above the wilderness, the East Eagle trail parallels the river for 13.4 miles to its headwaters and provides access to Hidden Lake via the Hidden Lake Trail, the headwaters of the Minam River through Frazier Pass, or Eagle Cap or Lakes Basin through Horton Pass. Several other trails that begin below the wilderness boundary (Little Kettle Creek #1945, Gold King #1926, and Sullivan Creek #1946) provide access to the surrounding foothills that are adjacent to the corridor. The East Eagle road is part of a popular maintained snowmobile route during the winter months.

There are no recreation developments in the corridor except for the East Eagle Trailhead and Gold King Trailhead. Along the East Eagle Road there are 20 to 30 dispersed camping areas in the river corridor which receive moderate use, providing a base for summer and fall recreational pursuits. Additional dispersed campsites as well as primitive developed sites are available nearby in the West East Eagle and Eagle Creek drainages.

The only current recreational improvements suggested for the corridor includes improving two trailhead parking areas and signage, and solving compaction and sanitation problems associated with the dispersed sites. There are outstanding opportunities to interpret the area's rich natural and cultural history that could potentially attract visitors from outside the geographic region and enhance their recreational experiences.

Finding: The quality and diversity of dispersed recreational opportunities available along the East Eagle Creek corridor makes it a popular area almost year-round. There are exceptional opportunities to develop interpretive sites or tours to explain the area's unique natural and cultural history. Interpretation of the area's gold mining history could be developed to compliment the other nearby historic sites such as the Oregon Trail Interpretive Center, potentially attracting visitors from outside the geographic region. ***The findings rate recreation as an outstandingly remarkable value.***

WILDLIFE

Determination of Outstandingly Remarkable Values: *Populations:* Many species of wildlife typical to the region inhabit the area including Rocky Mountain elk, mule deer, black bear; cougar, bobcat, beaver, fisher, martin, and small mammals, reptiles, and amphibians. A large variety of birds can be found along East Eagle Creek, including goshawks, golden eagles, osprey, pileated woodpeckers, great horned owls, spotted sandpipers, blue and ruffed grouse, and many species of song birds. Although suitable habitat exists for the federally-listed endangered American peregrine falcon *(Falco peregrinus anatum)* and threatened northern bald eagle *(Haliaeetus leucocephalus),* and for candidate threatened and endangered species (Category 2) including the Preble's shrew *(Sorex preblel),* Blue Mountain cryptochian *(Cryptochia neosa),* and Townsend's Big-Eared Bat (reported in Goose Creek to southwest in mining adits). No threatened or endangered animal species are known to inhabit the East Eagle Creek drainage. Bald eagles have been sighted in the winter along portions of East Eagle Creek; however, no nests have been reported in the East Eagle Creek study corridor. Granite Cliff has the potential to provide excellent peregrine nesting sites but no peregrine falcon sightings have been reported in the drainage.

Habitat: Wildlife habitat within the East Eagle Creek drainage is varied, ranging from high elevation sub-alpine meadows and forests to low elevation ponderosa pine forests. Except for small campsites and light grazing by recreational livestock, wildlife habitat is nearly pristine in the Wilderness portion of East Eagle Creek. Suitable habitat exists for the endangered American peregrine falcon, threatened northern bald eagle, and candidate-threatened and endangered Preble's shrew and Blue Mountain cryptochian; however, none of these species are known to inhabit the East Eagle Creek drainage. The corridor provides high-value elk summer range, and falls within the ODFW's Keating elk management unit, which supports approximately 500-head of Rocky Mountain elk. The whole watershed contains much old growth and provides suitable habitat for old growth-dependent species such as goshawks and cavity nesters. While riparian habitat is nearly pristine in the Wilderness portion of the drainage, a few portions of the lower East Eagle Creek corridor have been altered somewhat by the construction of a gravel road, which reduced the extent of the riparian flood plain and narrowed and straightened the river course. The lower corridor is located in the Crater and Sheep Rock Sheep and Goat Allotments, which have been vacant since 1978. There are no plans to fill the allotment.

Finding: Wildlife was found to be important in the East Eagle Creek corridor; however, ***it was not found to be an outstandingly remarkable value*** as it is typical of wildlife on other rivers in the region.

FISHERIES

Determination of Outstandingly Remarkable Values: *Populations*: East Eagle Creek supports populations of native redband/rainbow trout *(Oncorhynchus mykiss* sp.), non-native

introduced eastern brook trout *(Salvelinus fontinalis),* and possibly native bull trout *(Salvelinus confluentus).* Also present are mountain whitefish *(Prosopium williamsom),* and sculpins *(Cotlus* sp.).

The Oregon Department of Fish and Wildlife (ODFW) currently stocks Main Eagle Creek with approximately 9,000 hatchery rainbow trout annually from mid-June through mid-August. About 500 are put in the West Fork at West Eagle Meadows. A total of 1,500-2,000 are stocked at four or five locations from Boulder Park down to Tamarack Campground, on about four occasions.

It is doubtful that any of these hatchery trout ascend even the lower reaches of East Eagle Creek. Hatchery rainbow typically move downstream when placed in a harsh environment like upper Eagle Creek, if they are not caught or die first. There is likely no genetic introgression from these hatchery fish to the wild, locally adopted red band/rainbow. There is little chance that any hatchery trout could survive over the winter to spawn in the spring.

Bull trout are listed on the Regional Forester's Sensitive Species List and as Category 1 under the Endangered Species Act by the U.S. Fish and Wildlife Service (USFWS).

The existence of bull trout in Main Eagle, West Eagle, and East Eagle is fairly well-documented until the mid-1960s. La Grande District (ODFW) archive files contain records of angler creel checks that verify this. There is no other information in the files until the mid-1980s when angler reports indicate bull trout were caught in the Martin Bridge Trail section of Main Eagle Creek during July, August, and September. However, fish sampling throughout the entire basin from June to September, 1990-1992 resulted in no bull trout observations.

Two sites were sampled unsuccessfully on East Eagle Creek; one in Section 28 near tributaries Jack Creek and Twin Canyon Creek, and the other about four miles upstream in Section 3 near a tributary named The Box (about one mile inside the Eagle Cap Wilderness boundary). Since only two sites were sampled out of a number of miles of suitable habitat, there is still a distinct possibility that a small, low-density population of the resident, non-migratory life history type of bull trout will be found in East Eagle Creek with more extensive sampling.

However, the fact that no bull trout have been found recently, even though the high water-quality and fish habitat of East Eagle, West Eagle, and upper Main Eagle have remained essentially unaltered since the mid-1960s, would lead to some speculative but highly probable factors responsible for such rapid decline.

Apparently, the majority of bull trout populations in the Eagle Creek drainage was of the migratory, fluvial (riverine) life-history type and could not adapt to rearing in the very warm waters and lake environment of Brownlee Reservoir. Further, the construction of Brownlee and Hells Canyon Dams prevented any migration of bull trout into flowing parts of the Snake River for over-wintering habitat in slow, deep pools. In addition, some of the eggs, fry, and carcasses of the spring Chinook salmon that ascended and spawned in the Eagle Creek drainage were probably an important part of the food base for bull trout. With the construction of Hells Canyon Dam this food source was abruptly lost. La Grande District (ODF&W) archived files contain records up to 1962 of spring Chinook redd counts on East Eagle Creek. In 1957, the count showed 75 redds and 235 salmon carcasses in the lower three miles of East Eagle, giving an indication of the amount of biomass and nutrients that are no longer available.

With the loss of anadromous Chinook salmon and summer steelhead, and the scarcity of bull trout, redband/rainbow trout (a Regional Forester and State Sensitive Species) now appear to

be the dominant fish species in East Eagle Creek. Non-native eastern brook trout (probably out of Hidden Lake or Crater Lake) are found in the few lower-gradient sections of East Eagle.

Historically, East Eagle Creek was regularly visited and fished by members of several Native American tribes. Spring Chinook salmon, summer steelhead, and the large migratory bull trout would have all been available. Although anadromous fish are now extinct in East Eagle Creek, Native Americans still travel to the area to revisit their ancestral fishing grounds. Long-time local residents still can recall the excellent salmon, steel head, and bull trout that East Eagle Creek once provided.

Habitat: Habitat for fish is of generally good to high quality despite a variety of factors which have locally affected fish habitat conditions. Starting as early as the 1860s, a variety of activities have occurred within the study corridor which have generally decreased the quality of habitat and affected populations. This included road construction, mining, timber harvest, and grazing of sheep and cattle.

Livestock grazing has not been a serious problem in the East Eagle Creek drainage for many years. The Sheep Rock Allotment has been vacant since the 1960s and there are no plans for putting sheep back on it. Some cows from the Goose Creek Allotment have periodically trespassed up East Eagle Creek but a cattleguard and fencing at a strategic area that was installed in the summer of 1994 should prevent most cattle trespass.

Some timber harvest has occurred throughout the drainage, but little timber harvest has occurred on National Forest land in the East Eagle drainage since the 1960s. However, logging on some of the private in-holdings near Sullivan Creek and also near the mouth of East Eagle Creek has been occurring over the past several years.

The channel and in-stream habitat above Sullivan Creek has been affected in some areas by periodic debris torrents. These torrents appear to be naturally occurring as a result of the unstable, erosive granitic geology, steep slopes, and intense localized rainfall events. Such events may limit some in-stream complexity and habitat for an indefinite period of time. A tremendous debris torrent in the left fork of Sullivan Creek occurred in the late 1970s and downcut the channel as much as 30 feet from the origin of the stream at the headwall to the confluence with East Eagle. Just below the wilderness boundary, Kettle Creek has a history of major debris torrents, having washed out the road and bridge periodically. These torrents have resulted in the majority of resource impacts in the drainage including sedimentation, damage to transportation facilities, and loss of riparian habitat.

The stream follows a steep gradient in the Eagle Cap Wilderness (upper 8½ miles), losing an average of 412 feet per mile, and an average of 161 feet per mile over the rest of the corridor. The waters of East Eagle Creek are highly-oxygenated, cold and clear, due in part to the undeveloped upper 8½ miles (Eagle Cap Wilderness), and to undeveloped tributary reaches.

In-stream habitat condition in the upper reaches of East Eagle Creek within the wilderness could be rated as good while water quality is excellent. Above Curtis Creek, about 2 miles up from the wilderness body, the forested character along East Eagle Creek abruptly ends and the huge, open glacial cirque origins of East Eagle are revealed (the view where the trail leaves the Forest is breathtaking). The complete absence of trees along the upper 6½ miles of stream means that there is a total lack of large woody debris in the channel, normally thought to be an indispensable component of quality salmonid habitat. However, sufficient cover for fish is apparently afforded by pool depth and the cobble/boulder nature of the stream.

The Wilderness section of East Eagle Creek has been minimally impacted by minor trail building, wood removal for fires, and vegetation disturbance due to the foot travel and recreational stock use. This undeveloped stream reach is very important for providing the high quality, cold water found downstream.

Below the wilderness boundary, portions of the river corridor have been altered considerably, primarily by the debris torrents, but also by road construction, development of dispersed campsites along the stream banks, and the construction of summer homes on the private in-holdings. This has diminished the quality of habitat due to encroachment of road fill, rip-rapping, channel straightening, sediment delivery to the stream, removal of streamside shading vegetation, and removal of in-stream woody debris. Current mining prospecting activities have little or no impacts on water quality in the stream. Despite the variety of alterations, the water quality is considered to be excellent and the riparian zone in good to excellent condition throughout the study corridor.

Overall, there is a variety of riffles, glides, and deep pools which provide ample spawning, rearing, and holding habitat for native trout species. Relatively low disturbance to East Eagle Creek's stream bed and banks has occurred and good-to-high quality habitat for native trout is still present. In addition, East Eagle Creek meets the specific habitat requirements for bull trout, a species that is dependent on cold, high-quality water. Bull trout will possibly still be found in isolated populations when more extensive fish sampling is done in East Eagle Creek.

There is some potential for restoration or improvement of habitat conditions through improved control of activities within the floodplain and riparian area, as well as some potential for improvement of water quality from major tributaries entering the main stem which would benefit the designated portion of the river. Below the wilderness boundary, large woody debris could be reintroduced to the stream channel in places where debris jams may have occurred historically.

> **Finding:** East Eagle Creek is known for its excellent trout fishing and supports a significant amount of fishing activity throughout the season. Although the diversity of resident and non-game species is typical of other rivers in the region, the importance of the existing good-to-high-quality habitat which supports native trout, possibly including the sensitive bull trout, ***qualifies fisheries habitat in East Eagle Creek as an outstandingly remarkable value.*** The excellent water quality and near-natural hydrologic regime are important factors contributing to the outstanding fisheries habitat values.

HERITAGE (Historic)

Determination of Outstandingly Remarkable Values: Many cultural resource sites exist throughout the East Eagle Creek corridor, including evidence of Native American use and historic mining activity.

A number of Native American cultural groups utilized the East Eagle Creek drainage during historic times, following the traditional patterns of use that were established prior to the coming of the white man. Members of the Nez Perce, Umatilla, and Cayuse tribes regularly traveled to the area to camp, fish, hunt and gather. Other cultural groups were reported to periodically travel to the area, including the Shoshone Bannock and the Northern Paiute. Little physical evidence of this historic Native American use remains today.

The Area is part of the East Eagle Creek Historic Mining District. The activity that attracted the greatest number of people into the corridor historically, and in turn had the most significant impact on the land, was the mining of gold and copper ores, beginning in the early 1860s in Eagle Creek and expanding into East Eagle Creek in the 1870s. One of the earliest settlements was at the East Eagle Mine in 1879, which later became the town of Eagleton. A post office was established at Eagleton in 1896. Past mining activities modified the landscape that today can be interpreted as historic features. They include mining test holes, adits, tunnels, ditches, and tailings from hard rock mines. The corridor also contained small mills known as arrastras to grind ore.

The East Eagle Creek corridor was tied to Eagle Creek by a wagon road, which accessed the main stage routes and horse trails along Eagle Creek. The Union-Cornucopia Wagon Road, just outside the corridor, connected the Eagle Creek and Cornucopia mining districts with the then-county seat of Union, Oregon. Most of the gold from the lode mines in these districts was transported out of the mountains over this route. The area was also reportedly tied to the Imnaha drainage and Cornucopia Mining District by foot trails that followed existing Native American trails in the area.

According to a 1913 USFS map, other activities recorded in the area included roads and houses along East Eagle Creek and the Ideal Ranger Station near the mouth of Jack Creek

> **Finding:** The settlement of Northeast Oregon is tied to the discovery of gold, and East Eagle Creek still has much evidence of this history. Outstanding opportunities exist to interpret a number of features located in fairly close proximity within the corridor. ***These features qualify historic heritage resources as an outstandingly remarkable value.***

HERITAGE (Prehistoric)

Determination of Outstandingly Remarkable Values: Written and oral history sources report the use of the East Eagle Creek drainage by Native Americans primarily for fishing and hunting purposes. The corridor was periodically and seasonally visited by small groups from several cultural groups, including the Umatilla, Cayuse, Nez Perce, and to a lesser extent by the Northern Paiute and Shoshone Bannock. The entire study corridor is within lands that were ceded to the United States Government, through a ratified treaty by the Nez Perce Tribe. The Eagle Creek drainage, just west of the corridor, is the dividing line between ceded lands of the Confederated Tribes of the Umatilla Reservation (Cayuse, Walla Walla, and Umatilla Tribes) and the Nez Perce Tribe. Surveys on Federal land completed to date in the river corridor have identified only a few prehistoric sites.

> **Finding:** The absence of known, rare, or one-of-a-kind sites within the area ***precludes a finding of outstandingly remarkable for prehistoric cultural values.*** There is some evidence that the East Eagle Creek area was used by prehistoric American Indians. Known and discovered sites will continue to be protected under existing statutes, regulations, and policy. Cultural resource surveys will be completed prior to any potential ground disturbing activities. The historic importance of the corridor will maintain the outstandingly remarkable value for all cultural resources.

GEOLOGY

Determination of Outstandingly Remarkable Values: East Eagle Creek begins high in the southern Wallowa Mountains, an area with a complex geologic record. The granitic Wallowa

batholith dominates in the upper East Eagle Creek drainage and is exemplified by Granite Cliff, which towers 4,000 feet above the creek. Feeder dikes from some of the local eruptions can be seen exposed in the older rocks and in the glacially carved granites in the upper glaciated reaches of East Eagle Creek.

The Wallowa Mountains were glaciated at least three times and perhaps as many as seven times between 11,000 and 500,000 years ago. The numerous cirque lakes, steep ridges, and craggy peaks in the upper East Eagle Creek drainage were created by the sculpting of valley glaciers flowing out from a central point near Eagle Cap Mountain. Visible in the lower and middle reaches of the East Eagle Creek drainage are the fossiliferous limestones of the Martin Bridge formation (known locally as black marble), and slates, shales, and sandstones of the Hurwal Formation. These two formations represent ancient sea floor sediments formed about 100 million years ago. Widespread volcanism occurred 15-30 million years ago, which resulted in the formation of basalt plateaus surrounding the Wallowa Mountains uplift.

As is typical throughout the Wallowa Mountains, the river valley is geologically unstable. Freezing and thawing contribute to periodic rockslides along cliffs which trigger debris torrents in the drainage. A recent occurrence is evident along Kettle and Sullivan creeks. In the mid-1970s a series of substantial debris torrents brought down large amounts of rock and soil from a height of about 2,000 feet, crossed and temporarily blocked the stream, and destroyed the river bridge. There are also numerous other examples of floods, slides, and debris torrents along East Eagle Creek and the river has numerous braided and abandoned channels, meanders, and gravel bars as a result of this action.

The ancient sea floor sediment formations found in the Martin Bridge and Hurwal formations contain the silicified shells of oyster-like bivalves, and fragments of corals and sponges. At least one significant paleontological discovery has been made in these formations in the adjacent Eagle Creek drainage in the recent past. The oldest vertebrate fossil to be discovered in Oregon was found in Eagle Creek which pushed back the known geologic record of vertebrate animals in the state by 50 million years. Since the East Eagle corridor contains the same formations, the drainage has also become a focus of interest for paleontology field classes and scientific research.

East Eagle Creek flows through the border zone of the Wallowa batholith, which in places has been mineralized and contains deposits of gold and copper. The erosion of these mineral-bearing rocks has resulted in the deposition of placer gold in the alluvial benches and stream gravels of East Eagle Creek and its tributaries. Much of the early interest in East Eagle Creek was related to gold. Since the discovery of gold in the region around 1870, several properties have been worked in the East Eagle Creek mining district, a large area encompassing the East Eagle Creek drainage and its tributaries.

The main mine at East Eagle was established in the 1870s which yielded small amounts of gold and copper. Production from other lode deposits in the mining district has been small. Other minerals such as silver, lead, and zinc have also been produced in small quantities.

Today, the majority of the drainage is currently under claim, prospecting still occurs on some of the old mines and claims, but there are no active mining operations.

> **Finding:** The variety of rare and exemplary geologic features in the corridor, particularly in the middle and lower reaches of East Eagle Creek merit the recognition of geology as

an outstandingly remarkable value. ***The finding is that the geology of East Eagle Creek is an outstandingly remarkable value.***

BOTANICAL/ECOLOGICAL

Determination of Outstandingly Remarkable Values: There is a wide variety of vegetation and plant communities found in the East Eagle Creek corridor. This is due to the elevation gradient between the headwaters and the lower boundary of the study corridor, an elevation change of nearly 5,200 feet. A significant representation of the plant communities of the Wallowa-Snake Province may be found in the corridor.

East Eagle Creek begins high in the Wallowa Mountains, and for the first 8.5 miles travels through the Eagle Cap Wilderness. Ecosystems are relatively undisturbed and natural processes dominate within this undeveloped river reach. In the high elevations, the area is dominated by wet and dry meadows of sedge, rush, alpine grass, and heather. Stringers of whitebark pine and subalpine fir reach these elevations. As the stream progresses down the valley from the headwaters to the Wilderness boundary, the true subalpine forests of whitebark pine, subalpine fir, and heathers gradually change to high elevation forests of Engelmann spruce, subalpine fir, and grouse huckleberry. Forests are interspersed with shrubs and brush in the unstable snow chutes, mountain mahogany and sagebrush communities on the drier south and east facing slopes of the drainage, and wet meadows in the valley bottom. Further downstream, mixed conifer forests of grand fir, Douglas-fir, and western larch become more dominant, and black cottonwood, aspen, and alder grow in the riparian areas fringing the riparian meadow openings.

The next 6.2 miles, from the Wilderness boundary to the confluence of Eagle Creek, Grand fir, Douglas-fir, ponderosa pine, Engelmann spruce, and western larch are the major tree species on the ridges with open park like ponderosa pine and grassy meadows along the valley bottom. The canyon slopes are typified by stringers of trees adjacent to rock outcrops and grassy openings on the drier sites. Moist and wet meadows fringed by deciduous trees, dominated by black cottonwood, are found adjacent to the creek. Disturbances to the riparian area are limited to dispersed campsites and spur roads along this stretch, and the road is located several hundred yards upslope and away from the river except near the confluence of Eagle Creek when it is near the river.

The extent and condition of the riparian communities has been affected somewhat by the road that parallels the east bank of East Eagle Creek. Continuing recreational use of the streamside meadows for camping, fishing, and picnicking also has some affect on the riparian communities.

The entire corridor is characterized by old growth forests interspersed with rock outcrops.

The corridor has not been extensively surveyed for the presence of unique plants. Of the surveys completed, no plants classified as threatened, endangered, or sensitive by the U.S. Fish and Wildlife Service have been found within the Wild and Scenic River corridor. Several populations of Bridge's cliffbrake *(Pallaea bridgesil)* and a population of Bank monkeyflower *(Mimlus clivicola)*, which are both on the U.S. Forest Service Region 6 Regional Forester's Sensitive Plant List, have been documented in or near the upper portion of the corridor. Threats to Bridge's cliffbrake, which is found on andesite, granitic, and talus slopes in this and several other drainages, and Bank monkeyflower of which this represents the sole Wallowa Mountain population, is thought to be minimal.

Finding: While the diversity of plant species and the number of plant communities found in the East Eagle Creek corridor is notable, due primarily to changes in elevation from the headwaters to the end of the W&SR corridor, it is fairly typical of other rivers in the region (Scorp Region 12). Therefore, ***botanical and ecologic values were not found to be outstandingly remarkable within the East Eagle Creek corridor.***

TRADITIONAL USE/CULTURAL VALUES

Determination of Outstandingly Remarkable Values: The entire study corridor is within lands that were ceded to the United States Government, through a ratified treaty by the Nez Perce Tribe. The Eagle Creek drainage, just west of the corridor, is the dividing line between ceded lands of the Confederated Tribes of the Umatilla Reservation (Cayuse, Walla Walla, and Umatilla Tribes) and the Nez Perce Tribe. As described in historic and prehistoric discussions above, the corridor was regularly visited by small groups from several tribes such as the Umatilla, Cayuse, Nez Perce, Northern Paiute and Shoshone Bannock in historic and prehistoric times. Native Americans from these tribes still travel to the area to hunt, fish, camp, and gather, continuing the traditions taught to them by their elders.

Finding:
Although no regionally unique locations of importance have been reported by the tribes that would qualify this value as outstandingly remarkable, it is recognized that all significant drainages in northeastern Oregon have special cultural value to the CTUIR and Nez Perce Tribes. Traditional use and cultural values are found to be important in the East Eagle Creek corridor; however, ***these values were not found to be outstandingly remarkable*** as they are fairly typical of other rivers in the region

CLASSIFICATION

Eligibility Determination: East Eagle Creek meets the minimum eligibility requirements as specified by the Wild and Scenic rivers Act. It is found to be free-flowing and current information supports the findings that six outstandingly remarkable resource values are present. These outstandingly remarkable values are: Scenic, Recreational, Fisheries, Geology, Prehistoric and Historic Heritage resources.

Water Resources Development

There are no impoundments in the study segment of East Eagle Creek. This allows the entire study segment of the East Eagle Creek to qualify for a classification of “Wild,” “Scenic,” or “Recreational.”

Shoreline Development

The segment of East Eagle Creek, from its headwaters to the Wilderness boundary lies entirely within the Eagle Cap Wilderness. Other than a trail which parallels the creek to its headwaters there is little evidence of human activity in this segment. There is little evidence of past timber harvest and no on-going timber harvest. The area is part of a vacant grazing allotment and no livestock grazing has occurred here since the late 1970s.

From the Wilderness boundary to the Section line between Sections 16 and 21 in T. 6 S., R. 44 E., W.M., there are several National Forest trailheads and a mine within the river corridor. Forest Development Road 7745 parallels East Eagle Creek for several miles but does not affect the natural flow of the stream. There is little evidence of past timber harvest and no on-going timber harvest. The area is part of a vacant grazing allotment and no livestock grazing has occurred here since the late 19708.

In the segment of East Eagle Creek from the south end of the above segment to the Eagle Creek Wild and Scenic corridor boundary (near the confluence of Eagle and East Eagle Creeks) a substantial amount of human activity and use is evident. This includes structures, summer homes, roads, bridges, dispersed recreational sites, past mining activities, and past and present timber harvest. Forest Development Road 7745 parallels East Eagle Creek in this segment crossing the stream twice. In addition, there are several private roads and two private bridges. Road development, bridge construction, and summer home development has resulted in rip-rapping and straightening of some portions of East Eagle Creek. The road prism confines the river in several places. The area is part of a vacant grazing allotment and no livestock grazing has occurred here since the late 1970s (except for some trespass).

The headwaters of Eagle Creek above the Wilderness boundary are a pristine segment with little evidence of human activity; this warrants a classification of "Wild." The middle segment, from the Wilderness boundary to the Section line between Sections 16 and 21 in T. 6 S., R. 44 E., W.M., is largely primitive and undeveloped with no substantial evidence of human activity and warrants a classification of "Scenic." The southernmost segment, from there to the Eagle Creek Wild and Scenic River corridor boundary, contains numerous examples, encompassing a wide range, of human activity along the river. This section warrants a classification of "Recreational."

Accessibility
Access to the river corridor, from its headwaters to the Wilderness boundary, is via trail. There are no footbridge crossings.

From the Wilderness boundary to the Section line between Sections 16 and 21 in T. 6 S., R. 44 E., W.M., graveled Forest Development Road 7745 parallels East Eagle Creek for several miles but in most places is distant enough so as not to be seen from the river. Several developed trail heads are located just south of the Wilderness boundary and provide access to the river corridor.

In the segment of East Eagle Creek from the south end of the above segment to the Eagle Creek Wild and Scenic corridor boundary (near the confluence of Eagle and East Eagle Creeks) graveled Forest Development Road 7745 parallels East Eagle Creek right along the creek bank and crosses the stream twice. In addition, there are several private roads and a private bridge in this segment.

The lack of constructed roads in the headwaters area above the Wilderness boundary qualifies this segment for a "Wild" classification. In the middle segment, below the Wilderness boundary, a Forest Service Road parallels the entire segment, but at a distance, thus qualifying the segment for a "Scenic" classification. In the southernmost segment, a Forest Service Road parallels the entire segment along the creek bank and crosses Eagle Creek twice. Several private roads also access the creek and cross it once. The entire segment is readily accessible by road and thus warranting a classification of "Recreational."

Water Quality
The water quality throughout East Eagle Creek meets or exceeds State Water Quality Standards. This is largely due to the expanse of wilderness encompassing the entire headwaters and the vacant grazing allotments. Below the wilderness boundary, the debris torrents and to a minor extent the variety of human activities and developments (roads, summer homes, timber harvest, grazing, etc.) have had some cumulative impact on water quality but not enough to reduce water quality below State standards. The entire study segment qualifies for a "Wild" classification.

CLASSIFICATION DETERMINATION

The river segment under study is classified as a "Wild" river from its headwaters to the Wilderness boundary, as a "Scenic" river from the Wilderness boundary to the Section line between Sections 16 and 21 In T. 6 S., R. 44 E., W.M., and as a "Recreational" river from there downstream to the Eagle Creek Wild and Scenic River boundary (on the NE Section corner of Section 6, T. 7 S., R. 44 E., W.M.).

Classification: Wild: 9 Scenic: 2.1 Recreational: 4.5

FIVE POINTS CREEK

A suitability study was conducted on Five Points Creek in the Wild and Scenic River Study report and final legislative environmental impact statement for Eight Rivers administered by the Wallowa-Whitman National forest. In that study, Five Points Creek was found suitable as a Wild and Scenic river. Given this finding of suitability, this stream will continue to be considered eligible and suitable until legislative action is taken considering designation.

Location: This study focuses on the potential eligibility and classification of the main stem of Five Points Creek, from its headwaters just north of the confluence with the Middle Fork of Five Points Creek (SW 1/4. SE 1/4, Section 11, T. 1 S.. R. 37 E., W.M.), to the National Forest Boundary approximately ¼-mile southwest of Blacksmith Canyon (NW 1/4, Section 30, T. 2 S., R. 37 E., W.M.).

River Mileage:
Studied: 12.1 miles
Eligible: 12.1 miles

Eligibility:
Determination of Free-flow:
The entire study segment, which contains no dams or diversion structures, ***is found to be free-flowing.***

SCENERY

Determination of Outstandingly Remarkable Values: The Five Points Creek drainage lies within the dissected basalt plateau uplands sub-type of the Blue Mountains landscape. The area is characterized by elevated plateaus of layered Columbia River basalts dissected by eroded canyons. Five Points Creek flows through a 500- to 800-foot-deep canyon that cuts through the broad, open, ridges of the surrounding plateau. The steep canyon walls of the main stem and tributaries, occasional rock outcrops, variety of plant communities, and the free-flowing river are all of scenic interest. A 1984 Forest-wide visual resource inventory classified the entire drainage as "Class A – Distinctive" due to the highly scenic features found in the drainage.

A variety of vegetation is found in the Five Points drainage. The principal community types in the drainage are conifer and shrub/grass communities common in the Blue Mountains. Scattered open stands dominated by ponderosa pine grow on the south-facing slopes, and dense mixed conifer stands dominated by fir and western larch grow on north-facing slopes. The floodplain is broad in the lower drainage, and supports wet meadows and well-established

riparian vegetation, including black cottonwood, alder, willow, and hawthorn, as well as a few conifers. Upstream from Drumhill Ridge, park-like stands of large diameter old-growth trees are found.

The floodplain is dynamic, and frequently changes course. This entire reach is undeveloped, and has a variety of interesting natural features, including braided channels, small islands, woody debris dams, pools, drops, and meanders.

Visible cultural modifications are infrequent in the lower drainage below Drumhill Ridge and nearly nonexistent in the upper drainage. There is some minor evidence of railroad logging including stumps, sections of old railroad grade, a clearing and scattered tin cans where the Camp One logging camp was located, and several other flats where other smaller logging camp sites were located. In the 60 years since these activities ceased, forests and grasslands have reclaimed the sites, and most visitors are unaware of disturbance.

Livestock graze in the lower corridor. Visible evidence of recreational activities is limited to trails and some ATV activity.

> **Finding:** ***The scenic features of Five Points Creek drainage qualify as an outstandingly remarkable value.*** The combination of distinctive landscape elements, lack of cultural modifications, and the primitive and undisturbed nature of the viewshed are notable.

RECREATION

Determination of Outstandingly Remarkable Values: Five Points Creek flows through a remote and primitive canyon which is part of the 8,800-acre Mt. Emily Roadless Area Recreation opportunities are typical of semi-primitive ROS (recreation opportunity spectrum) settings. Recreational pursuits include hunting, fishing, hiking, ATV use, mountain biking, horseback riding, camping, picnicking, and sightseeing. Use is fairly light, except during the popular deer and elk hunting seasons. Most users come from La Grande and surrounding areas.

The Five Points drainage is popular with “purist” hunters because of its high-quality, remote hunting experience. Fishing in Five Points Creek is popular in the spring and summer. The river is too small for boating. Snowmobiling in the area during the winter is limited to the surrounding ridges, in particular Drumhill, Telephone, and Herron ridges.

Access into the drainage is limited to trails and a primitive road. Midway up the corridor a jeep road runs from canyon rim to canyon rim, fording the creek and accessing the historic Camp One logging camp site. Currently very popular for ATV use and formerly popular for four-wheel drive use, the road was recently closed to four-wheel drive traffic. The trail system above Camp One was closed to motorized use in 1990 and motorized use discouraged throughout the corridor. The closure however, was not promulgated. Some motorized ATV use is occurring in the upper portion of the corridor on the Mt. Emily-Summit (FS #1859A), Five Points (FS #1843), and Upper Five Points Trails (FS #1859).

Above Camp One, the upper portion of Five Points Creek is paralleled by a primitive trail. This trail is used by horse riders, mountain bikers, and hikers. The trail continues to Mt. Emily Creek and then proceeds up Mt. Emily Creek to Herron Ridge and Forest Development Road 3120. Other trails such as the Evans Trail (FS #1841) and Mt. Emily-Summit Trail also cross through the upper portion of the corridor. Near Camp One, the old closed jeep roads have been turned into foot trails and have been added to the District’s trail system. Opportunities to improve the trail system exist and are planned when funding becomes available.

The County does have an easement for a County Road along the bottom of Five Points Creek to Camp One, which dates back to 1896. The road however, was obliterated by the railroad grade, and 70 percent of the railroad grade has been obliterated by the stream.

There are no developed recreation sites in the corridor, but surrounding areas, especially along Forest Development Road 31 to the northern end of the Five Points drainage, are heavily used by campers.

Access to the peaks and ridges surrounding the drainage provides views into this pristine area. The headwaters of the drainage can be seen from the road and the Indian Rock Viewpoint.

> **Finding:** Although the remote and primitive nature of the drainage contributes to the high quality recreation within the corridor, recreational opportunities are typical of semi-primitive settings in the region. Use levels are low, with most users coming from the local area. With the exception of a few primitive trails, there are no developed recreational facilities in the corridor. ***The finding is that recreation does not qualify as an outstandingly remarkable value.***

WILDLIFE

Determination of Outstandingly Remarkable Values: Populations: Wildlife species typical to the region live in the area. Large mammals include Rocky Mountain elk, mule and white-tailed deer, cougar, and black bear. The Mt. Emily Unit elk herd reportedly is one of the largest populations in Northeast Oregon and one of the most productive herds in the country. Wolverines have been sighted in the river drainage in the past, although their current status in the drainage is not known. Due to the area's pristine condition, many bird species can be found, including owls, woodpeckers, song birds, and a full complement of raptors. Bald eagles, a federally listed endangered species, have been seen in the river corridor. Historical nest sites are documented in the corridor. The endangered American peregrine falcon and goshawk, a species of interest, have also been seen in the drainage. A minor amount of habitat is identified for Canada lynx (lynx Canadensis) in the headwaters of the drainage. Lynx are not known to currently inhabit the Five Points drainage.

Habitat: Wildlife habitat in the Five Points drainage is diverse. The riparian black cottonwood habitat type in the lower corridor is thought to provide habitat for up to 300 species of wildlife, and is considered the most limited habitat type on the La Grande Ranger District. The corridor provides big game winter range on the lower portions of the corridor, and high-quality summer range in the upper reaches. The Five Points River drainage is largely primitive and undeveloped to nearly pristine in the upper reaches, and with riparian habitat in the lower reaches and the large contiguous blocks of old-growth forests in the upper reaches, provides a diversity of habitat types. ATV and motorcycle use have resulted in disturbance to wildlife and damage to soils and streambanks in the vicinity of Camp One. Noxious weeds are also present and are likely being spread by unregulated off-highway vehicle use in the stream corridor.

> **Finding:** The quality, variety, and importance of existing habitat, as well as the presence of species of interest, including the American bald eagle and a significant population of elk, ***justify a finding of outstandingly remarkable for wildlife values in the Five Points drainage.***

FISHERIES

Determination of Outstandingly Remarkable Values: Populations: Five Points Creek supports populations of summer steelhead and native rainbow trout. Five Points Creek is a regionally important producer of summer steelhead. No migration barriers exist and the system could support other anadromous species; however, there are no historical records of other anadromous species using the system. Fish have not been stocked in the Five Points Creek drainage.

Summer steelhead *(Oncorynchus mykiss)* are listed as threatened under ESA. The Five Points Creek system is considered high-priority for protecting summer steelhead populations and overall fisheries habitat protection because of the existing populations and high water-quality.

Spring/summer Chinook salmon *(Oncorynchus tshawytscha),* listed as a threatened species by the National Marine Fisheries Service, are not present in Five Points Creek, but are present in the Grande Ronde River system, into which Five Points flows.

In 1998 the U.S. Fish & Wildlife Service listed bull trout *(Salvelinus confluentus)* under the Endangered Species Act. Several bull trout records exist within the Five Points study corridor.

Habitat: Fish habitat is considered high quality because of moderate stream temperatures, road less nature of the area, and low turbidity as measured by a monitoring station at the mouth of Five Points Creek. This stream is one of the least turbid streams on the La Grande Ranger District and serves as a key watershed for summer steelhead and spring/summer Chinook salmon. In 1993, it was one of the few Northeastern Oregon streams noted as an Aquatic Diversity Maintenance area by the Eastside Forests Scientific Society Panel.

The system is lacking in pool habitat from Camp One downstream to the National Forest boundary, possibly due to past railroad logging and a splash dam. The potential for quality habitat is considered high, and stream rehabilitation has been proposed to improve pool habitat downstream from Camp One. Some sediment is entering the system due to motorcycle and ATV use on old jeep roads and fords associated with Camp One.

Five Points Creek is known for its clear, cool water. When the Grande Ronde River is muddy, Five Points Creek often remains clear. This high-quality water is an important contribution to the Grande Ronde River system, which supports spring/summer Chinook salmon, bull trout, and other sensitive fish populations.

> **Finding:** ***Fisheries values in Five Points Creek are found to be outstandingly remarkable*** due to the presence of summer steelhead and native rainbow trout populations in the system, and the existing “high quality” of fisheries habitat (specifically water quality, low temperatures, low turbidity) for indigenous stocks and for endangered spring/summer Chinook salmon in the Grande Ronde River.

HERITAGE (Historic)

Determination of Outstandingly Remarkable Values: There are few documented historic cultural resource sites in the Five Points drainage, limited to railroad logging-related structures and travel routes through the area

Logging in the Five Points drainage dates back to the early 1900s. Logging operations associated with the Mt. Emily Lumber Company started in the area in 1925, and in 1927-1928

the company began constructing its logging railroad. The railroad extended up Five Points Creek to Section 27, crossing and re-crossing the creek at several points. Only 10% to 20% of the railroad bed, constructed from native materials, still exists. All the ties and rails are gone. Camp One, a remnant of a big, semi-permanent camp, was located about one-third of the way up the corridor. Evidence of this encampment can still be seen adjacent to the creek and on a bluff on the north side of the drainage. There are remnants of a dam that possibly was used as a power source. This site has good potential for interpretation of railroad logging in the region. Remains of historic logging activities are also found in several of the tributary canyons of Five Points Creek.

Little is documented about other historic activities in the corridor. It is reported that the Marcus and Narcissa Whitman party crossed through the Five Points drainage in 1836 en route to establish a Protestant mission among the Cayuse Indians near present-day Walla Walla, Washington. There are no documented historic American Indian sites in the corridor; however, the area was undoubtedly used in historic times by members of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) for fishing, hunting, gathering, and religious purposes. The entire drainage is within the ceded boundaries of the CTUIR.

> **Finding:** Based on current information, ***historic values within the corridor do not merit an outstandingly remarkable finding.*** Although railroad logging was significant in the history of the region, this activity is not particularly rare or unusual in Northeast Oregon. Camp One and the associated logging railroad grade are significant features with good interpretive potential, especially considering the difficult terrain these activities occurred on. Known and discovered sites will continue to be protected under existing statutes, regulations, and policies. Cultural resource surveys will be completed prior to any ground-disturbing activities.

HERITAGE (Prehistoric)

Determination of Outstandingly Remarkable Values: There is little surviving evidence of prehistoric use in the Five Points drainage, although the area was likely used by prehistoric American Indians for fishing, hunting, gathering, and religious purposes. The dynamic nature of the creek may have eliminated or obscured sites located in the floodplain. Some sites exist on the surrounding ridges.

> **Finding:** The absence of known, rare, or one-of-a-kind sites within the area ***precludes a finding of outstandingly remarkable prehistoric values.*** There is some evidence that the Five Points Creek area was used by prehistoric American Indians. Known and discovered sites will continue to be protected under existing statutes, regulations, and policies. Cultural resource surveys will be completed prior to any ground disturbing activities.

GEOLOGY

Determination of Outstandingly Remarkable Values: The Five Points drainage lies within the Blue Mountains physiographic province, which is considered by some as probably the best region in the Northwest in which to see a variety of geologic structures and rock types. This physiographic region spans a large part of the geologic time scale from the Permian period (290 million years) to the Pleistocene (1.5 million years). Fifteen to 30 million years ago widespread volcanism layered much of Northeast Oregon with Columbia River basalts. The river flows through the thick basalt lava plateau that was created by the eruptions. Basalt is the dominant

rock type, and volcanic features such as columnar basalts and pillow lavas occur in the parallel, bench-shaped flows. These geologic features contribute significantly to the scenic qualities and enhance the recreational experience.

> **Finding:** The geologic features of the Five Points Creek drainage are not unique to the region, and other rivers provide viewing and study of regional geologic features. Therefore, ***the geologic values of Five Points Creek do not qualify as outstandingly remarkable.***

BOTANICAL\ECOLOGICAL

Determination of Outstandingly Remarkable Values: The forest and steppe vegetation that dominates this and nearby canyons is typical in many ways of the plateau uplands. Ponderosa pine and Douglas-fir forest communities typically cover the south-facing slopes; dense mixed-conifer forests grow on the north-facing slopes. However, there are communities and species of interest in the drainage. In the lower reaches of the drainage below Camp One, well-developed riparian vegetation, the black cottonwood community in particular, provides important habitat for many wildlife species. This habitat type is limited on the La Grande Ranger District. Pacific yew, a species of interest found occasionally in the Blue Mountains, grows as an understory species in the seeps and springs areas and is present in several plant communities in the Green Mountain vicinity. In the upper portions of the drainage, primarily above Fiddlers Hell, there are large tracts (up to 300 acres) of old-growth forest which include some large diameter grand fir. The relatively undisturbed nature of the river canyon contributes to the area's importance for a variety of plants and animals.

Evidence of natural processes (fire, insects, disease) typical to the region can be found in the corridor, although there have been few fires in the corridor in the recent past. In the 1970s the area was affected by the tussock moth outbreak that occurred over much of the Blue Mountains. The moth population collapsed naturally, but spruce budworm populations have increased to epidemic levels throughout the 1980s. Tree mortality is variable, but especially severe in multi-storied stands near Tie Creek and in the corridor below Drumhill Ridge. Douglas-fir beetles have caused moderate mortality in large diameter Douglas-fir scattered throughout the drainage.

> **Finding:** Several factors contribute to the significance of ecological values in Five Points Creek. The presence of large, intact tracts of old-growth forests in the upper reaches of the drainage, the extensive black cottonwood riparian communities found in the lower reaches of the drainage, the presence of significant populations of Pacific yew in seep and spring areas, and the functioning of the river corridor as a plant and animal migration route are all extremely important and contribute to the wildlife, scenic, and recreational values of the corridor. However, the vegetation and ecological values, although significant for the area, are fairly typical for many undisturbed areas throughout the Blue Mountains. The corridor contains no nationally or regionally important populations of indigenous plant species, unique species, or populations of State or Federally-listed, or candidate-threatened, endangered, and sensitive species. ***The finding is that botanical/ecological values in the Five Points drainage are not outstandingly remarkable.***

TRADITIONAL USE/CULTURAL VALUES

Determination of Outstandingly Remarkable Values: The Five Points drainage is entirely within the ceded lands of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR).

Tribal members still travel to the area to hunt and gather, fish, and camp, continuing the traditions taught to them by their elders. The CTUIR has not reported any regionally unique locations of importance.

> **Finding:** While the study portion of Five Points Creek has no regionally unique locations of importance reported by members of CTUIR, it is recognized that all significant drainages in northeastern Oregon have special cultural value to the American Indians indigenous to the area. In particular, the anadromous fish runs in the Grande Ronde system are extremely important to CTUIR and the member tribes of the Columbia River Inter-Tribal Fish Commission. Traditional use and cultural values are important in the Five Points drainage; however, ***these values were not found to be outstandingly remarkable*** as they are fairly typical of other rivers in the region.

CLASSIFICATION

Eligibility Determination: Five Points Creek meets the minimum eligibility requirements as specified by the Wild and Scenic Rivers Act. It is found to be free-flowing and current information supports the findings that three outstandingly remarkable values are present in the river corridor. The outstandingly remarkable values are Scenery, Fisheries, and Wildlife.

Stream Study Segments

Segment 1- The upper main stem segment from its confluence with the Middle Fork of Five Points, downstream to Tie Creek; approximate length 5 miles.

Segment 2- The lower main stem segment from it's confluence with Tie Creek, downstream to the National Forest Boundary located approximately *1/4* mile southwest of Blacksmith Canyon; approximate length 7 miles.

Water Resources Development

There are no impoundments in the study segment of Five Points Creek. The entire study segment of Five Points Creek qualifies for a Wild River classification based on these criteria.

Shoreline Development

From the late 1800s through the 1920s, railroad logging proceeded up the drainage to about a mile upstream from Tie Creek. The railroad grade was built adjacent to, and in some places, directly in the stream channel. The ties and rails were removed in the 1930s and little evidence remains of the railroad or the railroad grade except in the lower 3 miles of the study corridor.

The main stem of Five Points Creek, from just north of the confluence of the Middle Fork of Five Points Creek to the confluence of Tie Creek, is dominated by views of large diameter Douglas-fir, grand fir, and western larch. Little evidence of past logging exists except for a few stumps. The railroad grade is not evident in this segment and no livestock grazing occurs. Evidence of human activity is minimal.

Evidence of human activity is more apparent downstream, from the confluence of Tie Creek to the National Forest boundary. Some evidence of historic logging still exists, including stumps and portions of an old railroad grade. Camp One, once the site of a logging camp, is located at the confluence of Little John Day Creek. Little evidence remains of the old logging camp, except a large field which has become popular for dispersed camping.

There is evidence of several old roads in the area. An old jeep road, accessed by a network of local roads off Forest Service Development Roads 31 and 3120, fords the creek providing

motorcycle and all-terrain vehicle (ATV) access to the area. The jeep road was recently closed to automotive and four-wheel drive traffic. The lower part of the drainage is within the Five Points allotment, and domestic livestock grazing occurs here.

The segment above Tie Creek is largely pristine, with minimal evidence of human activity. This segment meets the criteria for a Wild River classification. Below Tie Creek, the evidence of a variety of historic and present-day human activities is greater in both scope and frequency, although the river canyon is still largely primitive and undeveloped; therefore, this segment meets the criteria for a Scenic River classification.

Accessibility
The main stem of Five Points Creek, from just above the confluence of the Middle Fork Five Points Creek to the confluence of Tie Creek, is inaccessible except by trail. Horseback and foot travel occurs on the trails located within the corridor. Motorcycle and ATV occurs regularly just outside of the corridor, and although discouraged, some of this does occur within the corridor.

The segment below Tie Creek downstream to the National Forest boundary is accessible by an old jeep road. Four-wheel drive use was once extensive on the old jeep road that crosses Five Points Creek, but motorized has been limited to ATVs and motorcycles. Trail use throughout this segment includes mountain bikes, horseback, and foot travel.

The entire Five Points Creek study corridor meets the criteria for a Wild River classification due to a lack of roads and accessibility. The only current access is by trail.

Water quality
On the main stem of Five Points Creek, from just above the confluence of the Middle Fork Five Points Creek to the confluence of the creek, water quality likely meets state standards. The segment below the creek down to the National Forest boundary, water quality exceeds state standards. The entire study segment does not meet the criteria for a Wild River classification based on these criteria.

CLASSIFICATION DETERMINATION
While lower portion of the corridor below Tie Creek has some past developmental attributes that fit the Scenic River classification (the railroad grade and some evidence of logging), the excellent water quality, the lack of structures, lack of access, natural ecosystems, and lack of shoreline development better meet the Wild classification. Therefore, it is determined that the entire study river corridor is eligible for a Wild River classification.

Classification: **Wild: 12.1**

GRANITE CREEK

A suitability study was conducted on Granite Creek in the Wild and Scenic River Study report and final legislative environmental impact statement for Eight Rivers administered by the Wallowa-Whitman National forest. In that study, Granite Creek was not found suitable as a Wild and Scenic river. Given this finding of unsuitability, this stream is no longer considered eligible, regardless of the presence of outstanding remarkable values.

Location: This study focuses on the potential eligibility and classification of Granite Creek from its headwaters in the Seven Devils Mountains to the Snake Wild and Scenic River boundary. The entire study river corridor lies within the Hells Canyon Wilderness in Adams and Idaho counties, Idaho. The study area is part of the Payette and Nez Perce National forests but is administered by the Wallowa-Whitman National Forest.

River Mileage:
Studied: 12.8 miles
Eligible: 12.8 miles

Eligibility:
Determination of Free-flow:
The entire study segment, which contains no dams or diversion structures, is ***found to be free-flowing***.

SCENERY

Determination of Outstandingly Remarkable Values: The diversity of landforms, water, color, and vegetation present throughout the study corridor of Granite Creek is one of the most attractive attributes of the study corridor. The area is part of the Hells Canyon Wilderness where ecosystems are undisturbed, and natural processes dominate. Granite Creek begins at 8,600 feet in a scenic basin, surrounded by rugged 8,000- to 9,000-foot peaks in the Seven Devils Mountains. From its outlet in a very small cirque lake, it cascades over rocks and fine granitic sand as it descends from the mountains into Hells Canyon of the Snake River. Vegetation in the classic U-shaped glacial valley is sub-alpine, and consists of wet and dry meadows of sedge, rush, alpine grass, and heather, interspersed with stringers of whitebark pine, subalpine fir, and talus slopes. Expansive views of the surrounding Seven Devil Mountains are afforded from every meadow opening. Numerous avalanche chutes, landslides, and scoured rock outcrops create a highly diverse and dynamic landscape that vies for attention with the crystal-clear creek. Meadows and riparian areas, steep side slopes, rock outcrops, and rim rocks also provide diversity and visual interest. The swift, free-flowing river serves as a continual focal point and contributes significantly to the scenic beauty of the area.

After 1½ miles and a drop of 2,000 feet, (25 percent gradient) the stringers transition into open forests of sub-alpine fir, Engelmann spruce, and grouse huckleberry. At an elevation of 6,799 feet, Granite Creek empties into 30-acre Emerald Lake. Emerald Lake gleams in a deep canyon between black walls (Fuller, 1982). Below the lake, Granite Creek slows in its decent and flattens out to a 7 percent gradient. From 6,000 to 4,000 feet, the creek flows through mixed conifer forests of Douglas-fir, grand fir and western larch. Several 8,000- to 9,000-foot peaks dominate this section, including Monument Peak, Casey Mountain, and Black Imp.

The Black Lake-Horseheaven Trail (FS # 214) crosses Purgatory Saddle, accessing the upper Granite drainage from the Black Lake Campground. The trail provides access to Emerald Lake and magnificent views of the upper 2/3 of the drainage. The trail then parallels Granite Creek to about the 6,200-foot elevation, before it abruptly climbs out of the drainage to the northeast. Some hikers come into the drainage on this trail from Windy Saddle campground via Horse Heaven. The views from this trail into the Granite drainage are outstanding.

At an elevation of 5,000 feet the streambed narrows as it enters a steep V-shaped canyon. The creek again begins a rapid decent as it drops at a 17 percent gradient over boulders, cascades, and small falls. Just above the mouth of Devils Farm Creek the gradient flattens out again and

the streambed widens dramatically to 300 to 400 feet.

Below 4,000 feet, picturesque stands of ponderosa pines are the predominant tree species and form a mosaic of open forest and grassland habitat. Below 3,000 feet the canyon takes on a character of the lower Snake River Canyon. Slopes are covered by bunchgrass. Hardwoods and shrub communities form dense communities along the river bottom.

The Devils Farm Trail (FS #114) traverses Granite Creek from Devils Farm Creek downstream to the Snake River, affording excellent views of the lower portion of the study corridor.

The Granite Creek study corridor ends at the 2,000-foot elevation where it meets the Snake River Wild and Scenic River corridor. Here the creek is 20 to 40 feet wide and 2½ to 4 feet deep, and becomes a boulder-roaring torrent in the early spring.

Evidence of human-caused change in the Granite Creek drainage is minimal and limited to a few trails, one trail bridge in the extreme upper portion, and some past grazing in the extreme lower portion.

A recent visual resource inventory of the area determined that over 90 percent of the drainage possesses a “Class A – Distinctive” landscape variety. There are some small areas of “Class B –Common” landscapes in the middle and lower portions where coniferous tree cover is uninterrupted. Nearly the entire drainage is visible from Hat Point, the most popular overlook in the Hells Canyon National Recreation Area. The study corridor provides the most dominant view on the Idaho side of the canyon as seen from Hat Point. Sensitivity levels were not listed in the survey since the area is entirely in wilderness. Sensitivity levels if listed would be Level 1 due to the many viewpoints and trail systems in the area.

> **Finding:** Granite Creek possesses a great deal of diversity in landform, water, color, and vegetation, notable in the geographic region. The variety in the landscape is dramatic and memorable, from the glaciated landscape of the upper portion, the steep forested canyon in the middle portion, and the dry bunchgrass canyon and green riparian vegetation in the lower portion. In addition, the contrast between the lush green meadows, subalpine forests of the upper portion and the grass-covered slopes with prickly pear and greenbush in the lower portion is notable. The entire drainage, for its whole length from rim to rim, is essentially undeveloped, presenting a vestige of primitive America. The outstanding beauty of Granite Creek as viewed from the trails within the drainage and from Hat Point outside the drainage ***warrant a finding of outstandingly remarkable for scenery.***

RECREATION

Determination of Outstandingly Remarkable Values: The entire Granite Creek study corridor is located within the boundaries of Hells Canyon Wilderness in the Hells Canyon National Recreation Area.

Although one of the largest streams located within the Idaho portion of Hells Canyon Wilderness, it receives little direct recreation use. This is primarily due to its inaccessibility and rugged character. The Devils Farm Trail (FS #114) traverses Granite Creek from the Snake River Wild and Scenic River corridor boundary, upstream for approximately 1½ miles. Near Slaughter Gulch, the trail leaves Granite Creek and begins a long ascent up Devils Farm Creek. The upper end of the Granite Creek drainage is accessed by the Black Lake-Horseheaven Trail

(FS # 214) from the Black Lake Campground and Trailhead (outside the study corridor). This trail accesses Emerald Lake and parallels Granite Creek for 3½ miles before climbing out of the drainage to the northeast en route to Horse Heaven. The Casey Mountain Trail (FS # 216) parallels Granite Creek for another mile before crossing Granite Creek and leaving the corridor to the southeast en route to Emmett Mountain and the Six Lake Basin. About half the drainage is not accessed by developed or user trails, and is extremely difficult to traverse.

Recreation trail use on all these trails is very light. Recreationists begin visiting the upper lakes of the drainage in early July, and use will continue throughout the fall hunting seasons. Visitors travel to the area primarily to backpack, horse pack, fish the lakes, view wildlife, hunt, and camp. Many people come in pursuit of a wilderness experience, solitude, to practice primitive skills or just "get away" from the pressures of daily life.

The primary recreation use in the corridor is associated with Emerald Lake, which is easily accessed lake by a few hours' hike of the Black Lake Trailhead. Visitor use at Emerald Lake is estimated at less than 300 people per year.

Unlike other portions of Hells Canyon Wilderness, users to this area are mainly local, or come from within a 100-mile radius of the area. Use could be categorized as light. Very little recreation use has been observed in association with the stream itself.

Although the area supports healthy populations of big game, hunting pressure is light. This is due mainly to the ruggedness of the terrain and the ever-present threat of early snows.

> **Finding:** Although the remote and primitive nature of the drainage contributes to the high-quality recreation opportunities within the corridor, recreation opportunities are typical of semi-primitive, primitive, and pristine wilderness resource spectrum settings in the region. Use levels are low, with most users coming from the local area. With the exception of a few primitive trails on each end of the drainage, there are no other recreation facilities in the corridor. ***The finding is that recreation does not qualify as an outstandingly remarkable value.***

WILDLIFE

Determination of Outstandingly Remarkable Values: Populations: The area designated as the Hells Canyon National Recreation Area supports approximately 360 wildlife species. The Granite Creek study corridor plays a part in the habitat supporting these species. Some of these species are regionally or nationally important. A variety of songbirds (neotropical migrants), elk, deer, black bears, cougars, and golden eagles and other raptors, rattlesnakes, and chukar are common in and around the study corridor.

Many of the species are wide-ranging, and will pass through or forage within the study corridor (e.g., deer, elk, mountain goats, bighorn sheep). Some of these species are listed as endangered, threatened, sensitive, or are of special concern to land management agencies (e.g., wolverine, peregrine falcon, marten, fisher, goshawk). There is potential use of the study corridor by wolves and grizzly bear due to the presence of these species in other parts of Idaho. There is documented use of the study corridor by endangered peregrine falcons.

There is also the likelihood that the harlequin duck (listed on the Regional Forester's Sensitive Species list) and tailed frog (listed on the Idaho State sensitive list), which are dependent on riparian areas and streams, would be found within the Granite Creek study corridor.

Habitat: The Granite Creek study corridor is inherently diverse. Its headwaters are in subalpine ecotypes, characterized by stunted whitebark pine, then flows through more fir/pine associations, and finally to open rock and grasslands. Small meadows are dispersed throughout some of the upper portions. Elevations start at approximately 8,600 feet and end at approximately 2,000 feet. This diversity of habitat lends itself to a diversity of wildlife species in a small area.

The study corridor also provides a link for migrating species from mild wintering areas along the confluences with the Snake River, to the upper slopes and forests for breeding. The entire Granite Creek corridor is inaccessible by road. This area is likely used by migrating birds. In fact, due to its inaccessibility, it likely contains valuable breeding habitat and security. The topography lends itself to be territorial boundaries of individuals within species.

> **Finding:** The diversity of habitat, inaccessibility, and quality of the habitat as well as the present and potential use of the area by threatened and endangered species (e.g., peregrine falcon, wolf, and grizzly bear) ***justifies a finding of outstandingly remarkable wildlife values in the Granite Creek study corridor.***

FISHERIES

Determination of Outstandingly Remarkable Values: Granite Creek supports populations of fish species that are regionally and nationally important. Granite Creek also supports a diverse assemblage of fish species. These include bull trout, which is an indicator of high-quality, clean and coldwater habitat; steelhead trout; cutthroat trout; rainbow trout; and spring/summer Chinook salmon.

Chinook Salmon
On May 22, 1992 the National Marine Fisheries Service (NMFS) officially listed the Snake River spring/summer Chinook salmon as threatened species under the Endangered Species Act. The listing was recently changed to “endangered.” Granite Creek was designated critical habitat for Snake River spring/summer Chinook salmon as interpretation of Federal Register Notice dated December 28, 1993.

Snake River spring/summer Chinook salmon migrate above all eight dams to spawn in smaller streams at high elevations. There are five major spawning and rearing basins for these stocks, including the Salmon, Grande Ronde, Clearwater, Tucannon, and Imnaha River basins. Granite Creek is located within the Snake River Basin and has documented 4.1 miles of spawning and rearing habitat.

Current run sizes in the Snake River Basin reflect the interaction of variable environmental conditions, such as oceanic productivity and weather patterns, and a variety of management activities. Four major management activities that have contributed to the decline of Chinook salmon are hydroelectric development and operation, fish harvest, fish hatchery influences on disease and genetic fitness, and fish habitat conditions (Leonard 1993).

Spring/Summer Chinook Salmon: A low estimate of total Chinook salmon produced from the Snake River Basin prior to 1850 based on the amount of habitat available, was 1.4 million fish. Other estimating methods suggest the run could have been twice this size. By the mid-1900s, historical abundance of spring/summer Chinook from the Snake River had been reduced by 95 percent. In the last 30 to 40 years, abundance has decreased another tenfold. Current

populations of wild fish are only 0.5 percent of historic levels. The Snake River wild spring/summer Chinook population as indicated by the number of spawning redds declined from 13,000 redds in 1957 to 620 redds in 1980. The number of redds increased gradually through 1988 to 3,395, but has since declined. In 1989, 1,008 redds were counted, and in 1990, 1,224 redds were found (U.S. Army Corps of Engineers 1992).

Formal surveys to document the present and historical numbers of returning spring/summer Chinook adults in Granite Creek have not been performed. It is estimated that numbers have decreased in the same trend as that found in the Snake River Basin. It is indicated by Keller (1993) that there are very low numbers of spring/summer Chinook using Granite Creek. Granite Creek is designated Wild & Scenic at the lower reach (as part of the Snake River Wild & Scenic River), and is designated wilderness for the entire drainage, and conditions have changed little since the time Chinook were reported using this stream. The major cause of non-use today appears to be a lack of returning adult spawners.

Furthermore, this creek has a low flow volume, and may not have been used by Chinook every year in historical times.

Steelhead/Rainbow Trout
Summer steel head *(Oncorynchus mykiss)* are presently listed on the Regional Forester's and the State's Sensitive Species lists. Summer steelhead are also an important anadromous fish species in the Granite Creek portion of the Snake River System. Escapement numbers for the Snake River are unknown prior to construction of the four lower Snake River dams. The total escapement (native and hatchery) is currently estimated at 114,800. Under present hatchery plans, native stock is expected to be used for hatchery supplementation programs. This plan recommends maintaining stock integrity of native fish as much as possible (Herrig, D., 1991)
.
Formal surveys to document the present and historical numbers of returning summer steelhead adults within Granite Creek have not been performed. It is estimated that numbers have decreased in the same trend as that found in the Snake River Basin.

Bull Trout
On May 10, 1993 the U.S. Fish & Wildlife Service officially announced a 90-day finding on a petition to list the bull trout *(Salvelinus confluentus)* under the Endangered Species Act. In 1994, the U.S. Fish & Wildlife Service commenced a formal review of the status of the bull trout and decided that federal listing was warranted but precluded at this time due to other species being a higher priority for listing.

Bull trout are present in Granite Creek. Limited presence/absence distribution data suggests that a population exists from the confluence with the Snake River to 1 mile upstream; and they are suspected to exist from that point upstream for about 3 miles. (Wallowa Mountains Fisheries Zone snorkel data, 1992).

At present, no population data exists for bull trout in Granite Creek.

Cutthroat Trout
Cutthroat trout and rainbow hybrid fish have been found at the confluence of Little Granite Creek and Granite Creek (Wallowa Mountains Fisheries Zone snorkel data, 1992). A native cutthroat subspecies *(Oncorhynchus clark; ssp.)* was collected above a barrier on Little Granite Creek. Robert J. Behnke, professor of Fish & Wildlife Biology at Colorado State University and world authority on the classification of salmonid fishes, is presently examining the Little Granite

Creek cutthroat specimen to determine subspecies status (personal communication with Dave Mays, 1994). Granite Creek may contain native cutthroat trout above a barrier. Future fish surveys will need to be conducted in the future to verify presence/absence and distribution of cutthroat and other fish species in this system.

Native cutthroat trout have not been previously documented in this portion of the Snake River Basin. Cutthroat trout became the state fish of Idaho on July 1, 1990, to help protect shrinking populations and suitable habitat.

Habitat
The existing condition of six limiting factors can be rated as excellent in the surveyed Chinook habitat in Granite Creek. Sediment, large woody material (LWM), pools, stream shade/canopy cover, and bank stability are not limiting production of present spring Chinook. More data is needed to determine whether or not temperature or streamflow are affecting Chinook, but limited information indicates they are not. The Desired Future Conditions for the six assessable limiting factors are already being met in the existing condition.

Habitat potential is excellent for Granite Creek.

> **Finding: *Fisheries values in Granite Creek are found to be outstandingly remarkable*** due to the presence of federally listed endangered spring Chinook salmon; Regional Forester's and State Sensitive summer steelhead trout; native rainbow trout; the possibility of native cutthroat trout – the state fish of Idaho; and Category 1 bull trout populations. In addition, fisheries values in Granite Creek are found to be outstandingly remarkable in that Granite Creek supports populations of fish species that are regionally and nationally important, and due to its high quality fisheries habitat for indigenous stocks.

HERITAGE (Historic)

Determination of Outstandingly Remarkable Values: Most of the Granite Creek corridor has not been inventoried for the presence of archaeological resources. Granite Creek is a vital part of Nez Perce tribal history. The area near the confluence of Granite Creek and the Snake River (just outside the study corridor) contain possible village sites, meeting places, and fishing camps for the Nez Perce Tribe. It is certain that tribal members traveled farther upstream along Granite Creek for hunting, fishing, and gathering.

There are the remains of a famous historic homestead on Granite Creek (just outside the corridor near the mouth of Little Granite). It was settled by Mart Hibbs in 1902. It served as a home site and ranch headquarters for several families until it was purchased by the Forest Service in 1976. Grave sites and evidence of an old cabin remain. Other than this site which is entirely outside the corridor, there is little evidence of early homesteading, historic structures, or Native American use in the study corridor.

> **Finding:** The Granite Creek study corridor plays a vital role in Nez Perce tribal history, but there are few sites of historical interest in the study corridor. These sites are not notable in the geographic region or in terms of significant events, people, or activity. ***Therefore, the finding is that historic heritage recourses do not warrant outstandingly remarkable value status in the study corridor***

HERITAGE (Prehistoric)

Determination of Outstandingly Remarkable Values: Granite Creek lies within the ceded boundaries of the New Perce Tribe and plays a vital part of Nez Perce tribal history. The confluence of Granite Creek and the Snake River (outside the study corridor) was a meeting place for Native Americans. The area was primarily used by the Nez Perce Tribe but other tribes, including the Shoshone, visited the area for hunting, fishing, and gathering. Since no extensive heritage resource inventory of the area has been completed, only a couple of prehistoric sites have been identified. Known and discovered sites will continue to be protected under existing statutes, regulations, and policy. Cultural resource surveys will be completed prior to any potential ground-disturbing activities.

> **Finding:** There is evidence that the Granite drainage was used by prehistoric American Indians. However, the few identified prehistoric sites are not notable for the geographic region. Because all significant drainages in western Idaho were utilized by Native Americans, in the absence of known rare, one-of-kind, or sites with unusual characteristics, or exceptional human interest value(s), ***prehistoric heritage resources were not found to be an outstandingly remarkable value.***

GEOLOGY

Determination of Outstandingly Remarkable Values: The Granite Creek drainage lies partially within the Northern Rocky Mountains physiographic province and partially within the Snake River Trench sub-type of the Blue Mountains physiographic province. Both provinces span a large part of the geologic time scale from the Permian period to the Pleistocene. The stream drops 6,600 feet into Hells Canyon of the Snake River, helping to form part of the deepest gorge in the western hemisphere. The stream is named for the granite outcrops that are exposed at rivers edge. This is one of the few areas in the Seven Devils where the mineral composition of the mountains is revealed.

Granite Creek originates in the glaciated Seven Devils Mountains. The range of black basalt rims the upper portion of the canyon. The upper valley is U-shaped and classic alpine glacial features such as cirques, carved peaks, lakes, and cliffs, and pinnacles, are visible but not as numerous as other portions of the Seven Devils. Elongated carve knobs, called *roche moutonnees*, are found on the valley walls parallel to the direction of the glacier movement.

The lower portions along the Snake River Canyon were carved out when the Great Basin faulting lifted portions of Idaho and Oregon and backed up the Snake River creating a large lake over southern Idaho. North/south fissures allowed Granite Creek to cut sharply through these new uplands. Then, the Snake cut its canyon back into the lake and the waters poured into the Columbia and cut Hells Canyon. When this happened, the crust east of the canyon floated upward and created the Seven Devils Mountains.

The predominate rock types along the drainage and in the headwaters area are the tightly folded and metamorphosed sedimentary and volcanic rocks of the Seven Devils complex. Many are considerably sheared and metamorphosed just enough to make it difficult to know what the original rock may have been. The Seven Devils complex is basically a series of deformed volcanoes and the rocks that formed adjacent to the volcanic chain.
Vast basalt lava flows of the Columbia River lavas covered much of the lower Snake River region, including the Granite drainage, in the Middle Miocene. Very fluid basaltic lavas begin to erupt and pour from cracks and fissures in northeastern Oregon, southeastern Washington, and

western Idaho. Basalt poured from many simultaneously erupting fissures, covering most of the older landforms. The average thickness of the Yakima basalt layers was 50- to 100-feet thick, with pooling occurring in some areas to a thickness of 200 feet or more.

Melting waters and debris from Pleistocene glaciation greatly accelerated the erosion of the canyon of Granite Creek, exposing layers of basalt, red scoria, and interbedded sedimentary rocks. The typical lava flow layering and columnar basalt 10- to 100-feet thick are exposed in the middle and lower canyon. Interbedded sedimentary rocks consisting of mudstone, clay, lignite, and sandstone can be seen between some lava layers. Plant fossils may be found in the interbeds.

Rocks older than the Miocene Columbia River basalts (pre-Cenozoic) represent displaced fragments of volcanic, island arc, plutonic, and oceanic crust, and sediments which were accreted (welded) to the Mesozoic Continental margin by folding and thrust faulting.

The study corridor contains no mining claims or known economic mineralization. Due to wilderness designation, the entire study corridor has been withdrawn from mineral entry.

> **Finding:** The geology of Granite Creek is an interesting resource of this rugged mountain and canyon country. It has been an attraction to several generations of residents. Much of northeast Oregon geology, southwestern Washington, and west central Idaho is typified by Columbia River basalt canyons exposed by the down-cutting of rivers. The middle and lower portions of Granite Creek lie in a 3,000-foot deep canyon, but the canyon is typical of basalt canyons along the Snake River. The geologic features in the upper portion of Granite Creek are similar to the entire Northern Rocky Mountain area. The geology of Granite Creek is typical of the region, and therefore ***does not merit a finding of outstandingly remarkable.***

BOTANICAL/ECOLOGICAL

Determination of Outstandingly Remarkable Values: The Snake River Canyon and its tributaries are known to be one of the most floristically diverse areas in the northwestern United States. There are a number of probable causes for this diversity. Most important is the range of elevation which occurs over a relatively short distance between the Snake River and Seven Devils. Most plant species have adapted to life within a specific elevation zone and generally will not be found in both high and low elevations.

With its headwaters at 8,600 feet in the Seven Devils, Granite Creek drops 6,600 feet through the Hells Canyon Wilderness to the confluence with the Snake. Ecosystems are relatively undisturbed and natural processes dominate within this undeveloped river reach. Along the way, it flows through no less than four major vegetation types.

In the headwaters, the area is dominated by sub-alpine vegetation composed of wet and dry meadows of sedge, rush, alpine grass, and heather. Stringers of white bark pine and subalpine fir reach these elevations. This transitions into open forests of sub-alpine fir, Engelmann spruce, and grouse huckleberry. Mixed conifer forest of Douglas-fir, grand fir and western larch dominate from 4,000 to 6,000 feet. Below this zone, ponderosa pine is the predominant tree species and forms a mosaic of open forest and grassland habitat. Below 3,000 feet the lower reaches are dominated by bunchgrass and shrub communities. Riparian vegetation along the extreme lower stream elevations includes: white alder, birch, cascara buckthorn, choke cherry, hackberry, western serviceberry, and ocean spray.

A plant inventory of Granite Creek has not been conducted and it is unknown if populations of PETS plant species occur. There are a number of PETS plant sites that are known in the vicinity of Granite Creek and might potentially occur within the Granite Creek drainage. These species include Hazel's prickly phlox, Bartonberry, goldback fern, Wolf's currant, American wood sage, and perplexing halimolobos.

The entire corridor is characterized by old growth forests interspersed with rock outcrops.

The lower one mile of the Granite Creek study corridor is part of the 6,000-acre potential Little Granite Research Natural Area as proposed by the Wallowa-Whitman National Forest Land and Resource Management Plan. The area within the study corridor contains the following representative ecologic cells: Douglas-fir/ponderosa pine/snowberry, Snake River greenbush rims, low elevation stream, and Ponderosa pine/bluebunch wheatgrass.

> **Finding:** The Granite Creek drainage has potential habitat for six PETS plant species that are known from the local vicinity of Hells Canyon. Also included is a portion of a potential Research Natural Area. Perhaps more unique to Granite Creek itself is the diversity of plant species and the number of plant communities found in the corridor, which encompass at least four major habitat types. It is a combination of these three ***factors that make the botanical and ecological values of the Granite Creek corridor outstandingly remarkable.***

TRADITIONAL USE/CULTURAL VALUES

Determination of Outstandingly Remarkable Values: Granite Creek is included within the ceded boundaries of the Nez Perce Tribe. The area was used in prehistoric and historic times for fishing, hunting, and gathering. The Shoshone and other tribes, also occasionally utilized the area

> **Finding:** No extensive cultural resource inventory has been completed on Granite Creek, and no regionally unique sites have been identified by the tribes at this time. However, there is much interest in nearly all the drainages in northeast Oregon and western Idaho by various tribes as having special cultural value associated with their history and present-day activities. This is especially true for the Nez Perce Tribe. Also, those rivers having anadromous fish runs are of interest to all tribes. Traditional Use, Cultural Values are found to be important in the Granite Creek study corridor. However, ***these values were not found to be outstandingly remarkable*** since they are fairly typical of other rivers in this region.

CLASSIFICATION

Eligibility Determination: Granite Creek meets the minimum eligibility requirements as specified by the Wild and Scenic rivers Act. It is found to be free-flowing and current information supports the findings that four outstandingly remarkable values are present. These outstandingly remarkable values are: Scenery, Botanical/Ecological, Fisheries, and Wildlife.

Water Resources Development

There are no impoundments in the study corridor. The only structure near water in the study corridor is a small footbridge spanning one of the tributary streams, off Forest Service Trail #216. The entire study segment of Granite Creek qualifies for a classification of "Wild."

Shoreline Development
The upper portion of Granite Creek was part of the Granite Sheep and Goat Allotment that had been vacant since 1969 and is now officially closed. The lower portion of Granite Creek was part of the Sheep Greek Sheep and Goat Allotment, which had been vacant for 11 years before it was officially closed in the Hells Canyon NRA Comprehensive Management plan (USFS, 2003). Evidence of grazing in the study corridor is minimal since it has been 11-36 years since there was any grazing in the watershed, and the sheep tended to concentrate on the upper ridges rather than the stream bottoms.

The area is pristine and undeveloped. There is little or no evidence of man except for a few trails and recreation users in the area. The level of development warrants a classification of "Wild".

Accessibility
The area contains no developed roads. Access into the area is limited to several trails. About half of the study corridor has no trail access and receives little or no use due to steep canyon walls, narrow creek bed, and steep gradient. The lack of roads throughout the corridor and the lack of trails within the central portion of the study corridor qualify it for a "Wild" classification.

Water Quality
Granite Creek is pure, clear, and cold as it rapidly descends from the glacial cirques of the Seven Devils Mountains. Stream temperatures collected over a 2-day period in August during the 1992 Level II Stream Survey showed Granite Creek to consistently remain between 55 and 60 degrees Fahrenheit. These limited data suggest that stream temperatures may be in excess of Idaho Water Quality Standard of 50 degrees Fahrenheit for bull trout (EPA, 1997), but longer term monitoring is needed to substantiate that claim. Due to the lack of human activity in the study corridor, it is highly probable that stream temperatures are at their natural and historical site potential. The entire study portion of Granite Creek qualifies for a "Wild" classification.

CLASSIFICATION DETERMINATION
All four classification attributes meet the "Wild" standards for the study corridor. Its shorelines are pristine and the area is free of roads, impoundments, and evidence of man. The creek is inaccessible except in places by trail, and its waters likely meet Idaho Water Quality Standards. Thus, the Granite Creek study corridor qualifies for a "Wild" classification.

Classification: 12.8 miles "Wild"

NORTH FORK CATHERINE CREEK

A suitability study was conducted on Catherine Creek in the Wild and Scenic River Study report and final legislative environmental impact statement for Eight Rivers administered by the Wallowa-Whitman National forest. In that study, North Fork Catherine Creek was not found suitable as a Wild and Scenic river. Given this finding of unsuitability, this stream is no longer considered eligible, regardless of the presence of outstanding remarkable values.

Location: This study focuses on the potential eligibility and classification of North Fork Catherine Creek, from its headwaters in the Eagle Cap Wilderness to the National Forest boundary near its confluence with South Fork Catherine Creek (NE 1/4, NE 1/4, Section 23, T. 5

S., R. 41 E., W. M.).

River Mileage:
Studied: 13.7 miles
Eligible: 13.7 miles

Eligibility
Determination of Free-flow:
The entire study segment, which contains no dams or diversion structures, is ***found to be free-flowing.***

SCENERY

Determination of Outstandingly Remarkable Values: North Fork Catherine Creek originates high in a glacial cirque in the Eagle Cap Wilderness. This area occurs within the Wallowa Mountains Landscape Character type in an area of dramatic landforms, vegetation, and water features. Vegetation in the extreme upper reaches is varied, including scattered stands of subalpine fir and whitebark pine, grass, and shrub-dominated openings on dry sites and south facing ridges. The valley bottom is dominated by extensive stands of lodgepole pine and subalpine fir interspersed with wet meadows. A small unnamed cirque lake is located on the westernmost fork of the creek. Unobstructed views of the surrounding glacially carved ridges and peaks are seen from the meadow openings in the upper reaches of the drainage. Views of the surrounding mountains become obscured as one travels downstream into the predominately forested slopes and valley bottom below Catherine Creek Meadows, a scenic meadow located approximately three miles from the headwaters. The fast -flowing, crystal-clear creek adds to the scenic value of the area. Cultural modifications in the Wilderness are minimal, and include two cabins in the Catherine Creek Meadows vicinity, the trail, trail signs, and a log stringer bridge. A 1984 visual resource inventory classified this portion of the drainage as “Class A – Distinctive” due to the variety and quality of landscape features.

The lower two miles of the North Fork Catherine Creek takes on a character more typical of rivers in eastern Oregon as it enters the dissected basalt uplands sub-type of the Blue Mountains Landscape Character Type. The visual resource inventory found this area to be “Class B –Common” within the landscape type. Vegetation typical to the Blue Mountains is found here, including mixed conifer forests (ponderosa pine, grand fir, Douglas-fir, and western larch) on north-facing slopes and shrub/grass communities on drier sites. The clear, free-flowing river is a significant feature in the landscape. Evidence of past and on-going timber harvest, commercial grazing, and recreational activities are visible within and adjacent the ½-mile corridor. Cultural modifications are limited to the main road, a water monitoring station, two wooden road bridges, a constructed ford, picnic area, and a campground/trailhead complex. Numerous user developed dispersed campsites are visible along the river banks.

> **Finding:** The North Fork Catherine Creek drainage possesses scenic features notable in the geographic region. Some of the attributes that contribute to the scenic value of the area include the diversity of landforms from the glaciated headwaters to the dissected basalt uplands found lower in the corridor, the free-flowing river, and the diversity of vegetation. ***The finding is that the scenery of the area qualifies as outstandingly remarkable.***

RECREATION

Determination of Outstandingly Remarkable Values: The North Fork Catherine Creek corridor provides a wide variety of recreational opportunities, including dispersed and developed camping, fishing, hunting, hiking, horseback riding, and picnicking. Use is heavy in the corridor, and has been increasing in the past few years. This drainage becomes snow-free in early spring, and receives heavy use from spring through the late fall hunting seasons. A large portion of the visitors are from the local area, although some come great distances to take advantage of the early season access to the Eagle Cap Wilderness.

This entire segment is accessible by either gravel road or trail. A good quality gravel road parallels the lower two miles of the river. The North Fork Catherine Creek Trail (#1905) provides access to the unroaded and Wilderness portion of the upper drainage, and connects with several other system trails in the Wilderness. Recreation developments in the corridor are limited and generally primitive in design. They include the North Fork Catherine Creek Campground, picnic area, and trailhead to several Wilderness trails. Numerous dispersed camps in the river corridor receive heavy use, providing a base for summer and fall recreation pursuits.

> **Finding:** The quality and diversity of recreational opportunities available in the North Fork Catherine Creek corridor makes it a popular area with local residents and draws a substantial number of visitors from outside the region. ***The finding is that recreation is an outstandingly remarkable value in the North Fork Catherine Creek corridor.***

WILDLIFE

Determination of Outstandingly Remarkable Values: Populations: Many species of wildlife common to the region inhabit the area, including Rocky Mountain elk, mule deer, bobcat, cougar, and bear. Due to the relative inaccessibility and the dense vegetation, the uppermost reaches of the river corridor, and surrounding area, provides for high quality security habitat for elk and other species.

Other animals with more restricted distributions or more specific habitat requirements also inhabit the watershed. Two mustelids of interest, the pine marten, *Martes americana,* and the fisher, *Martes pennanti,* both inhabit older forested stands and use riparian corridors extensively. In addition, several bird species not listed but of great importance as indicators of special or unique habitats use the corridor. These include the pileated woodpecker, *Dryocopus pileatus,* and other cavity excavators, the goshawk *Accipiter gentiles,* and both smaller accipiters, Cooper's, *Accipiter cooperii* and the sharp-shinned hawk, *Accipiter striatus.* Other birds also require either riparian or old-growth habitat for at least some part of their life cycle. Examples are the brown creeper, *Certhia americana,* Vaux's swift *Chaefura vauxi,* western tanager, *Piranga ludoviciana,* and others, including primary and secondary cavity nesters and neotropical migrants.

There have been several documented occurrences of Federal or State listed or candidate threatened, endangered, or sensitive animal species in or near the corridor. These include the rosy finch, *Leucosticte arctoa,* peregrine falcon, *Falco peregrinum,* bald eagle, *Haliaeetus leucocephalus,* and Townsend's big eared bat, *Plecotus townsendi.* In addition, records of lynx, *Lynx Canadensis* within reasonable home range distances, and recent sightings and tracks of wolverine, *Gulo gulo* in and around the Wallowa-Whitman National Forest make it highly probable that appropriate habitats within the North Fork Catherine Creek watershed are being

used by these large mammals.

The corridor also includes several amphibian species. All of the common species, the long toed salamander, *Ambystoma macrodactylum,* the Pacific chorus frog, *Pseudacris regilla,* and the Western toad *Buto boreas* inhabit the entire region. Two additional amphibians, the spotted frog, *Rana pretiosa* and the tailed frog, *Ascaphus truei* also inhabit this aquatic and riparian corridor. The maintenance of particular habitat characteristics is critical to the viability of these two populations. Their distribution is restricted and patchy throughout their range. The spotted frog requires well-developed riparian habitat, backwaters and aquatic vegetation, which exists in this river corridor. The tailed frog inhabits the cold, clear headwaters of streams with limited logging and grazing impacts.

Habitat: The area is dominated by forested ecotypes ranging from ponderosa pine at lower elevations, through mixed conifer, to subalpine fir and lodgepole pine at the higher elevations. Interspersed grass/forb ecotypes, including high meadows, rocky openings, and stream riparian zones, provide structural and community diversity.

Habitat quality for game species is high throughout the watershed. Slopes in the lower corridor area, below North Fork Catherine Creek Campground, are key big game winter range. Numerous spruce bogs and wet meadows interspersed with large contiguous blocks of cover providing premiere big game summer range in the upper reaches of the river corridor. Because the area vegetation is thick and it is difficult for hunters to access, the upper drainage provides for good bull elk escapement during hunting season. The upper reaches of the drainage within the Eagle Cap Wilderness is high value summer range.

The status of most Federal or State listed or candidate species within the watershed is unknown; appropriate surveys have not been done. However, potential habitat exists for several species other than those already found. This habitat has been impacted to some extent by past and on-going activities, including grazing, timber harvest, firewood cutting, and recreational activities. Except for the grazing, impact is greatest in the lower reaches with extensive roading.

Several habitat types are known to support communities of greater than average diversity. In general, grass/forb and forested habitats of various seral stages support many species not founding homogenous habitat situations. Habitat exists for threatened Canada lynx (Lynx Canadensis) in the upper half of the watershed. Lynx are not known to currently inhabit the area. In addition, the juxtaposition of early and late seral stages creates edges of great contrast, variability and diversity. Much of the corridor contains forested stands of old-growth character which support the dependent species. Grass/forb habitats in natural openings and high meadows are interspersed throughout the corridor.

The presence of special or unique habitats also adds diversity by providing structural or physical qualities not found in the general landscape. Some of these special habitats found in the river corridor are wetlands, wet or moist meadows, spruce bogs, rock outcroppings and talus, snag and woody material, and riparian areas.

The riparian areas of the river corridor contribute greatly to community diversity in several ways. Riparian areas in general support a greater diversity than all other habitats. The juxtaposition with late seral stages and other types of wetlands adds yet another facet of unusual habitat. Riparian areas are, by nature, corridors, providing contiguity and connectivity of habitat types; and also travel pathways for larger, more mobile species. Another unique feature of the corridor is the range of stream systems incorporated, both higher and lower order streams, enhancing

the diversity of coverage even further.

> **Finding:** Wildlife populations are found to be a significant value within the river corridor. Populations of several Endangered, Threatened, and Sensitive species have been found in the watershed. Habitat exists for mammals such as fisher, marten, and wolverine in the area, which are dependent upon riparian corridors. A diverse amphibian community is supported by the habitat within the corridor. A diverse avian community is supported by the habitat within the corridor. This includes old-growth dependent species, riparian species, cavity nesters, raptors, Management Indicator Species, and neotropical migrants. The diversity of wildlife found within or dependent upon the corridor supports a finding of outstandingly remarkable.
>
> Wildlife habitat is found to be a significant value in the river corridor. The presence of high-quality wildlife habitat; the number of kinds of habitat; the presence of unique habitat; the juxtapositions of habitats; the contiguous nature of riparian corridors; all contribute to an ecosystem component unmatched in diversity and importance throughout the entire district. The diversity of vegetation, number of natural edges utilized by big-game and non-game species, and presence of old-growth mixed conifer stands in the corridor, provide important habitat for a variety of wildlife species. The diversity of habitat found in the corridor ***supports a finding of outstandingly remarkable.***

FISHERIES

Determination of Outstandingly Remarkable Values: *Populations:* North Fork Catherine Creek supports populations of several species listed under the ESA, including: spring/summer Chinook salmon *(Oncorynchus tshawytscha),* bull trout *(Salvelinus confluentus),* summer steelhead *(Oncorynchus mykiss),* and regional forester-listed red band trout *(Oncorynchus mykiss gibbsi).*

The lower portion of the system, up to the Middle Fork of Catherine Creek is considered critical habitat for spring/summer Chinook salmon spawning. Summer steelhead utilize the system to Buck Creek where a small falls creates a natural passage barrier. Historically, bull trout populations had a wide distribution throughout Oregon, but many populations are extinct or near extinction. A population of bull trout in North Fork Catherine Creek from Buck Creek to the Wilderness boundary is considered stable.

Habitat: The overall condition of the system is considered fair to good. Habitat from Boot Hill upstream to the falls is considered in fair condition. In this upper part of the system the habitat type is excellent with 25 percent of habitat in pools, but bank stability is considered poor. There is habitat degradation due to cattle grazing from over utilization in the Catherine Creek Range Allotment. A new range allotment management plan has been developed and grazing has been reduced in the riparian area. From the National Forest boundary to Boot Hill the condition is good. Water quality is considered good and the stream temperatures do not exceed 65 degrees Fahrenheit.

From the National Forest boundary to Boot Hill the habitat is good except for low pool numbers. Only 6 percent of the habitat is in pools. Planned for habitat improvement is a 2.5-mile riparian fence exclosure from the National Forest boundary to North Fork Catherine Creek Campground. Roads along the lower portion of the river constrain the flow and add some sediment to the creek. Some stream shading has been lost from recent harvesting in the area.

Finding: The presence of stable habitat supporting four salmonid species, including three federally listed species, is highly significant regionally. Critical spring/summer Chinook salmon spawning habitat is found in this portion of the river***. Fisheries values qualify as outstandingly remarkable in the North Fork Catherine Creek study corridor.***

HERITAGE (Historic)

Determination of Outstandingly Remarkable Values: Historically there has been little activity along North Fork Catherine Creek. There are the remains of an old cabin located in the corridor but little is known about the site. In surrounding areas mining, logging, and grazing have contributed to development in the areas, but there is no evidence of these activities, or subsequent developments, along North Fork Catherine Creek.

Finding: The finding is that historic values within North Fork Catherine Creek corridor ***are not outstandingly remarkable.*** Known and discovered sites will continue to be protected under existing statutes, regulations, and policies.

HERITAGE (Prehistoric)

Determination of Outstandingly Remarkable Values: The North Fork Catherine Creek drainage is included within the ceded boundaries of the CTUIR. The area has been used by the southern Plateau Indians in prehistoric times for hunting, fishing, camping, root digging, and berry picking. To date; however, surveys on National Forest lands in the river corridor have not identified any significant prehistoric sites.

Finding: There is evidence that the North Fork Catherine Creek drainage was used by prehistoric American Indians, but the absence of known, rare, or one-of-kind sites within the area ***precludes a finding of outstandingly remarkable for pre-historic cultural values.*** Known and discovered sites will continue to be protected under existing statutes, regulations, and policy.

GEOLOGY/HYDROLOGY

Determination of Outstandingly Remarkable Values: The North Fork Catherine Creek begins high in the southwestern Wallowa Mountains, an area with a complex geologic record. The granitic Wallowa batholith dominates the upper drainage. The area was glaciated at least three times and perhaps as many as seven times between 11,000 and 500,000 years ago. The cirque basins, steep ridges, and craggy peaks in the upper drainage were created by the sculpting of valley glaciers flowing from the center of the range. Widespread volcanism occurred 15-30 million years ago, which resulted in the formation of the basalt plateaus surrounding the Wallowa Mountains. The lower roaded portion of North Fork Catherine Creek is dominated by the layered basalt formations.

The hydrologic features of North Fork Catherine Creek are typical of the precipitous snowmelt-fed streams of the Wallowa Mountains. Natural hydrologic features are nearly pristine in the Wilderness portion of the drainage. No unique hydrologic features are known to exist in the segment.

Finding: The geologic and hydrologic features of the North Fork Catherine Creek drainage, varying from the granitic and glaciated headwaters in the Wallowa Mountains to the dissected basalt uplands of the lower drainage, are interesting; however, are typical of the region. There are other drainages that provide viewing and study of the diverse geologic and hydrologic features in the region. Therefore, ***these values do not qualify as outstandingly remarkable.***

BOTANICAL\ECOLOGICAL

Determination of Outstandingly Remarkable Values: The NF Catherine Creek corridor contains some species of plants that are on the Northwest Region sensitive plant list. They are not unusual in this mountain range or others in northeastern Oregon and will receive protection to assure that management activities do not jeopardize the continued existence of sensitive species or result in adverse modification of their essential habitat under the standards and guidelines of the Forest plan. The plants, meadows, riparian areas, and plant associations are common in northeast Oregon. Although suitable habitat may exist for some threatened, endangered species, the potential is low, and none are known to occur.

Plants which are on the Northwest Region Sensitive Plant List that occur in the NF Catherine drainage include sensitive *Botrychium* species. It is likely that other locations may exist along the riparian corridor, but none have been located. These species occur in other similar areas on the forest.

Finding: ***The NF Catherine Creek corridor does not contain any botanical/ecological outstandingly remarkable values***.

TRADITIONAL USE/CULTURAL VALUES

Determination of Outstandingly Remarkable Values: The North Fork Catherine Creek drainage falls within the ceded lands of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). The area was used heavily in both prehistoric and historic times for fishing, hunting, root gathering and berry harvest. Tribal members still travel to the area to fish, hunt, gather, and camp, continuing the traditions taught to them by their elders.

Finding: While the North Fork Catherine Creek corridor has no regionally unique locations of importance reported by members of CTUIR, it is recognized that all significant drainages in northeastern Oregon have special cultural value to the American Indians indigenous to the area. In particular, the anadromous fish runs in the Grande Ronde basin are extremely important to CTUIR and the member tribes of the Columbia River Inter-Tribal Fish Commission. Traditional use and cultural values are found to be important in North Fork Catherine Creek; however, ***these values were not found to be outstandingly remarkable*** as they are fairly typical of the rivers in the region.

CLASSIFICATION
Eligibility Determination: North Fork Catherine Creek meets the minimum eligibility requirements as specified by the Wild and Scenic rivers Act. It is found to be free-flowing and current information supports the findings that four outstandingly remarkable values are present. These OR values are: Scenery, Fisheries, Recreation, and Wildlife.

Water Resource Development

There are no impoundments in the study segment of North Fork Catherine Creek. Because of this the entire study segment of North Fork Catherine Creek qualifies for a classification of Wild, Scenic, or Recreational.

Shoreline Development
Within the segment from the headwaters to North Fork Catherine Creek Campground, all but approximately 2 miles of the creek is within the boundary of Eagle Cap Wilderness. There is minimal evidence of human activity in this entire segment. The private parcel within the Wilderness (Catherine Creek Meadows) is grazed by livestock for a short duration, and a fence exists along the lower property line. There are two primitive cabins, one on private land and another on National Forest just upstream from Catherine Creek Meadows.

The next segment beginning with, and downstream of, North Fork Catherine Creek Campground, has a variety of evidence of human activity. A number of recreational developments are found along here. There is a trailhead for Wilderness access near the campground. The campground has a toilet, picnic tables, and fire rings, and there are a number of dispersed campsites along North Fork Catherine Creek as well. Approximately a mile downstream of the campground, there is a picnic area with tables and fire rings. Along the west side of the creek, there is much evidence of timber harvest activities, and livestock grazing occurs in the corridor also. This section also contains several road bridges, a water monitoring station, and a river ford.

From the headwaters to North Fork Catherine Creek Campground, the setting is largely pristine, with only a few scattered examples of human activity. This warrants a Wild classification. Downstream of North Fork Catherine Creek Campground, there is some recreational development and livestock grazing, and substantial evidence of timber harvest. This warrants a classification of “Recreational” for this segment.

Accessibility
Access in the river corridor, from the headwaters to North Fork Catherine Creek Campground (the end of the road), is via trail except at the road termini. This includes the two miles (approximate) of creek downstream of the Wilderness boundary. There is one footbridge crossing.

Downstream of the campground, a graveled Forest Road parallels this entire segment of North Fork Catherine Creek. There is a bridge crossing at Buck Creek and at Middle Fork.

Due to the fact that the upper segment (above North Fork Catherine Creek Campground) has only trail access in the river corridor; it qualifies for a Wild classification. Downstream of the campground, a graveled road is parallel to the creek, thus warranting a classification of Recreational.

Water Quality
From the headwaters down to the National Forest boundary, the water quality meets State standards. This is largely due to the high elevation snow pack in the wilderness that encompasses the headwaters and feeds the system late into the summer. The entire study segment qualifies for a Wild classification.

CLASSIFICATION DETERMINATION
As Stated earlier, the overriding determinant for classification is the degree of naturalness, or inversely, the degree of evidence of human activity in the river area. The upper segment of

North Fork Catherine Creek, from the headwaters to North Fork Catherine Creek Campground, is essentially primitive and clearly qualifies for a Wild classification. However, the roaded access and amount of human activity (recreation development, timber harvest, livestock grazing) found downstream of the campground to the National Forest boundary warrants a Recreation classification for this segment.

Classification: 11.1 miles "Wild" 2.6 miles "Recreational"

Rock Creek/Killamacue Creek

A suitability study was conducted on Rock Creek and Killamacue Creek in the Wild and Scenic River Study report and final legislative environmental impact statement for Dutch Flat Creek, Killamacue Creek and Rock Creek administered by the Wallowa-Whitman National Forest. In that study, Rock Creek and Killamacue Creek were not found suitable as a Wild and Scenic rivers. Given this finding of unsuitability, these streams are no longer considered eligible, regardless of the presence of outstanding remarkable values.

Location: This study focuses on the potential eligibility and classification of Rock Creek from below Rock Creek Dam to the Forest Boundary. It will also focus on Killamacue Creek from its headwaters to its confluence with Rock Creek. This area is found south east of the North Fork John Day Wilderness area and north east of the town of Sumpter, OR.

River Mileage
Studied: 14.7 miles
Eligible: 14.7 miles

Eligibility
Determination of Free-flow: The lakes at the source of Rock Creek and Killamacue Creek each have low dams to augment late summer stream flow for irrigation. From the dam at Rock Creek Lake to the small diversion dam for hydro-electric power, Rock Creek is free-flowing. The 0.8-mile reach of Rock Creek from the diversion dam downstream to the Forest boundary is not free-flowing as the hydropower diversion takes all of the free-flowing water for one-to-four months per year. The North and South Forks of Rock Creek ***are free-flowing.***

Killamacue Creek is free-flowing from its headwaters on the main stem to the diversion ditch near the confluence with Rock Creek. This diversion affects the free-flowing nature of the last 0.1-mile of the stream. The branch of Killamacue Creek leading to Killamacue Lake ***is free-flowing*** from the base of the dam to its junction with the main stem of Killamacue Creek.

SCENERY

Determination of Outstandingly Remarkable Values: Rock Creek and Killamacue Creek start as small mountain streams just below the crest of the Elkhorn Ridge of the Blue Mountains. The Elkhorn Ridge is characterized by jagged peaks, cirque basins and subalpine lakes, precipitous streams, and deeply incised glaciated valleys.

From their headwaters, Killamacue and Rock Creek flow northeast out of the mountains en route to the Powder River Valley below. Mount Ruth, Chloride Ridge, Red Mountain, and Twin Mountain reach above timberline and dominate the surrounding skyline.

The creeks descend quickly through the alpine meadows near timberline and soon enter subalpine meadows and scattered stands of subalpine fir.

Panoramic views of the Rock Creek and Killamacue Creek drainages are seen from several vantage points along the Elkhorn Crest National Recreation Trail as well as from other trails located high in the drainages. Middle-ground views of portions of these drainages are seen from Interstate 84 and Highway 30.

There are year-long, high-quality scenic values in the stream corridor, including good plant diversity, mountain meadows, and mountain vistas. The rocky and rugged Elkhorn Ridge is viewed from high in the drainage. Timber cover lower in the drainage limits visibility of mountain vistas.

The area includes diverse species of wildlife, including elk, mule deer, mountain goats, pileated woodpeckers, and a variety of other species that can sometimes be seen while traveling through the area. The plant diversity includes western larch, aspen, spruce, Douglas-fir, grand fir, lodgepole pine, ponderosa pine and subalpine fir, some of it being old-growth along the trail. In the upper reaches, there is outstanding scenery associated with rock forms.

There are yearlong, high-quality scenic values in the stream corridor including good plant diversity, mountain meadows and mountain vistas. The Elkhorn Ridge is a rocky and rugged range, and it includes aspen groves among granitic outcroppings that provide outstanding scenery. The area includes diverse species of wildlife including elk, mule deer, mountain goats, pileated woodpeckers, and a variety of other species that can be seen from time to time while traveling through the area.

The plant diversity includes western larch, cottonwood, aspen, spruce, Douglas-fir, grand fir and subalpine fir. There is outstanding scenery associated with rock forms, timber stands and open alpine and subalpine vistas both in middle ground and distant viewing areas.

> **Finding:** The Killamacue Creek and Rock Creek System displays an overall natural and undeveloped character. Exceptions to the natural-appearing scene include a constructed mining road paralleling the streams and some evidence of prospecting, mining, and timber harvesting on the private land within the corridor. Natural patterns created by topography and natural processes such as lightning fires, avalanches, and rock slides, dominate the landscape character. In general, cultural modifications are minor in scale when compared to the entire landscape. ***The scenic values are outstandingly remarkable.***

RECREATION

Determination of Outstandingly Remarkable Values: The recreation quality is high for a semi-primitive motorized and non-motorized recreation experience due to the low density of users and undeveloped setting. Except for the historic mine and power line corridor, the area is in pristine condition. The majority of the visitors are from the local area, although some people travel a considerable distance to hunt in these drainages.

The main recreation use in the corridors begins in late spring and continues into the late fall hunting seasons. Visitors come to the area primarily to hunt for big game, fish, camp, sightsee, view wildlife, hike, backpack, and horseback. Mountain bike use of the road and trails is a

relatively new use that is increasing. The streams within the corridors are too small for boating. There is some winter recreation use.

Most of the study corridors are within the Twin Mountain Roadless Area, which encompasses most of the Elkhorn Ridge. The 60,000-acre-plus roadless area provides ample opportunities for solitude and experiencing a sense of self-reliance and adventure. The surrounding area also provides opportunities for a quality hunting experience in a remote setting. Recreation developments in the corridors are primitive and minimally developed, limited to trails, directional signs, foot bridges and trailheads. Trails connect to the Elkhorn Crest National Recreation Trail. This latter trail follows the crest of the Elkhorn Ridge offering views of the drainages. There are no developed campgrounds within the corridors along the streams, although many user-created campsites have been established over the years.

Recreational opportunities include hunting, fishing, hiking, mountain biking, sightseeing, horseback riding and a substantial opportunity for semi-primitive motorized travel. Semi-primitive motorized travel recreational opportunities are limited in northeast Oregon, and this area is within easy reach of Interstate 84 and the Baker Valley. There is a good network of dead-end roads up the North Fork past Mayflower Meadows and up the South Fork through a historic mining district. The amount of semi-primitive roads in an area this large makes it unique to the region and important for this specialized recreation.

> **Finding:** The Killamacue and Rock Creek System offer a diversity of semi-primitive recreation opportunities in a remote relatively primitive setting with low use. The Rock Creek Corridor offers a unique opportunity in northeast Oregon to access a relatively primitive setting by four-wheel drive vehicle. ***The recreation values are outstandingly remarkable.***

WILDLIFE

Determination of Outstandingly Remarkable Values: Populations: Populations of wildlife are similar to other drainages in the general area. Description of big game populations above can be applied to this system. Although some big game herds, small groups, and individuals may remain in generally the same area for extended periods of time, deer and particularly elk are nomadic in nature, moving and utilizing forage resources both temporally and spatially. The area provides a wide variety of habitat for many wildlife species. Habitat is not as pristine as the Dutch Flat system but does contribute to the ecological integrity of the area. The drainage does not contain nationally or regionally significant populations of indigenous wildlife species that are considered extraordinary or unique.

Habitat: Low- to moderate-quality wildlife habitat exists within this river corridor. Some riparian habitat within the area has been lost to road development and other activities, and the area is accessible by motorized vehicles which reduces habitat availability and increases potential harassment to wildlife. Habitat for several PETS species occurs within the area including bald eagle and peregrine falcon nesting and foraging habitat, wolverine and lynx habitat, and habitat for a variety of other wildlife species that are listed as sensitive. There have been no verified sightings of these species in this drainage, but this area has had only limited surveys for such species.

> **Finding:** ***There are no outstandingly remarkable wildlife values found within the study area.***

FISHERIES

Determination of Outstandingly Remarkable Values: Fish species found in the Rock Creek drainage include brook trout introduced to headwater lakes by Oregon Department of Fish and Wildlife 30-plus years ago. Redband trout, a native sub-species of the rainbow trout, is considered “sensitive” by USDA Forest Service, and lives in Rock Creek. The redbands dominate book trout in the steep and boulder strewn reaches of the stream while brook trout dominate the fish assemblages in the low-gradient reaches. Rock Creek provides good, and at times excellent, habitat for resident trout. It supports good populations of trout but is considered a minor sport fishery as the trout tend to average less than 10 inches in length.

> **Finding:** ***Killamacue and Rock Creek do not contain outstandingly remarkable fisheries values***.

HERITAGE (Historic)

Determination of Outstandingly Remarkable Values: The Elkhorn Ridge was utilized in prehistoric times by members of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) for fishing, hunting, and religious-purposes. The corridors were periodically and seasonally visited by small groups from the Shoshone-Bannock, and Northern Piute. The study area for the three creeks is within CTUIR’S ceded boundaries. Although site-specific cultural resource surveys have not been conducted, it is likely that prehistoric sites exist.

Tributaries of Rock Creek have historic mining buildings and shafts located along them. None of the old buildings are in use at this time, but many of the claims are still active. At one time, more than 200 miners worked the mines in the area. The roads in the Rock Creek drainage were developed for mining. There were no permanent dwellings constructed in the Killamacue drainage.

A historic hydraulic-driven pelton wheel power plant located about 1½ miles below the Rock Creek System study area on private ground is still in operation. It is listed on the National Register of Historic Places. It is operated by Oregon Trail Electric Co-op headquartered in Baker City. It was installed in 1905 to provide electrical power to mines in the Elkhorn Ridge area and was tied in with the Fremont Power Plant in the Granite area. The original Rock Creek hydroelectric facilities were constructed in 1905 by Rock Creek Power and Transmission Company, acquired in the same year by Baker Light and Power Company (CP National 1981; FPC 1951). In 1926, the original timber flume (3 feet deep by 6 feet wide) was replaced by the existing half-round flume with a flow capacity of 23 cubic feet per second (CP National 1981). The power line right-of-way through the timber is still visible today. A low head diversion dam on the lower reach at river mile 9.6 of the study stream diverts water to an old wooden flume that provides water to drive the power plant.

Cultural resource surveys have not been completed in the corridor; therefore, the existence of significant historic sites is not known.

> **Finding:** While these historic resources are of significant interest, they are typical of those found throughout this area. Therefore, ***they do not meet the criteria to qualify historic heritage resources as an outstandingly remarkable value.***

HERITAGE (Prehistoric)

Determination of Outstandingly Remarkable Values: The Elkhorn Ridge was utilized in prehistoric times by members of the CTUIR for fishing, hunting, and religious purposes. The corridors were periodically and seasonally visited by small groups from several cultural groups including the Shoshone-Bannock and Northern Piute. The study area for the Killamacue Creek and Rock Creek systems is within CTUIR'S ceded boundaries. Native Americans still travel to the area to hunt, fish, camp, and gather, continuing the traditions established prior to the corning of Euro-Americans to northeast Oregon. Although site-specific cultural resource surveys have not been conducted, it is likely that prehistoric sites exist.

Since cultural resource inventories have not been completed in the Killamacue Creek and Rock Creek systems, it is undetermined what level of significance pre-historic use had in the corridor. Based on surveys conducted in other portions of the Elkhorn Ridge, it is apparent that the area was used by prehistoric cultures, and it is anticipated that prehistoric sites exist.

> **Finding:** Because all significant drainages in northeastern Oregon were utilized by Native Americans, in absence of known rare, one-of-a-kind, or sites with unusual characteristics or exceptional human interest value(s), ***the prehistoric heritage values do not meet the criteria for outstandingly remarkable.***

GEOLOGY/HYDROLOGY

Determination of Outstandingly Remarkable Values: Geology: The sites of ore deposition in the Main Fork of Rock Creek and the South Fork of Rock Creek are outstandingly remarkable because they hold significant information about the conditions and geologic reasons for precious metals mineralization associated with the Bald Mountain Batholith. Studies of these outstanding sites are needed to help develop predictive models for the location of other mineral deposits in Oregon and elsewhere.

The upper drainages of the North Fork of Rock Creek and of Killamacue Creek contain outstandingly remarkable exposures of a rare rock type called lamprophyre. Study of these rocks will provide outstanding and critical contributions to understanding the tectonic history of northeast Oregon.

Hydrology: The water in all reaches of the Rock Creek System is in pristine condition. It is cool, clear and scenic. Some of the lower reaches, especially through Eilertson Meadow, have depositional features that include sandy-gravel channels. The remainder of the stream tends to be steep and bouldery. Levels of fine sediment in the streambed are moderately low despite a surrounding landscape that may be prone to generating significant quantities of granitic sand. Rock Creek is a beautiful stream but does not have any particular hydrologic feature that is unique to the region. The stream and its tributaries have several large waterfalls, but such falls are not uncommon in other similarly steep streams. The water in Killamacue Creek is in pristine condition. It is cool, clear and scenic. It is a small stream with a steep boulder or bedrock-dominated channel with frequent cascades and waterfalls. Depositional reaches include one in which the channel is narrow and sand-bedded as it meanders across a wet meadow which once was a lake bed, and a small flat across which a relatively straight, cobble-bedded channel appears to be in the process of recovering from a washout when the dam burst. The reach with the wet meadow includes heavy growths of reddish filamentous algae for a distance of about 1,000 feet below the old lake bed.

Finding: Geology: Killamacue Creek drainage contains outstandingly remarkable glacial features within the corridor. This glacial hanging valley is comparatively narrow, and the polished outcrops and rounded glacial forms are easily visible, easy to access, and major in scope. ***Both Rock and Killamacue Creeks contain outstandingly remarkable geologic features.***

Hydrology: Nearby drainages, like that of Dutch Flat Creek, provide better or more outstanding examples of the same hydrologic features found in Rock Creek or its tributaries. ***The hydrology of Killamacue Creek is not considered to be of an outstandingly remarkable value.***

BOTANICAL/ECOLOGICAL

Determination of Outstandingly Remarkable Values: The Rock Creek corridor contains some species of plants that are on the Northwest Region sensitive plant list. They are not unusual in this mountain range or others in northeastern Oregon and will receive protection to assure that management activities do not jeopardize the continued existence of sensitive species or result in adverse modification of their essential habitat under the standards and guidelines of the Forest Plan. The plants, meadows, riparian areas, and plant associations are common in northeast Oregon. Suitable habitat exists for some threatened, endangered and sensitive species, but their existence has yet to be confirmed.

The presence of *Lomatium erythrocarpum,* a species on the highest priority for listing by the U.S. Fish & Wildlife Service, in the upper portion of Rock Creek drainage is an outstandingly remarkable vegetative feature of this drainage. It is expected that it will be found elsewhere in the study area.
Rock Creek does not contain botanical/ecological outstandingly remarkable values.

Killamacue Creek has nine different wetland types along the relatively short study reach. There are few streams in which this number and diversity of wetland types can be found in such a small area. Several of the wetland types are not found in the other study drainages. There are no endangered or threatened plant species known in the drainage, although there are several species that are on the Northwest Region sensitive species list, but their existence has yet to be confirmed.

Suitable habitat exists for some threatened, endangered and sensitive species, but their existence has yet to be confirmed. One species included on the Northwest Region sensitive plant list, *Corydnlis caseana* var. *cusickii,* is likely to occur along the riparian corridor, but its existence has yet to be confirmed. It occurs in other similar areas on the forest.

Finding: ***Killamacue Creek does have outstandingly remarkable botanical/ecological characteristics.***

TRADITIONAL USES/CULTURAL VALUES:

Determination of Outstandingly Remarkable Values: The Elkhorn Ridge was utilized in prehistoric times by members of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) for fishing, hunting, and religious purposes. The corridors were periodically and seasonally visited by small groups from several cultural groups including the Shoshone-Bannock and Northern Piute. The study area for the Killamacue Creek and Rock Creek systems

are within CTUIR'S ceded boundaries. Native Americans still travel to the area to hunt, fish, camp, and gather, continuing the traditions established prior to the coming of Euro-Americans to northeast Oregon. Although site-specific cultural resource surveys have not been conducted, it is likely that prehistoric sites exist.

To date, no cultural resource surveys have been completed in the Killamacue Creek and Rock Creek systems by the Forest Service and no regionally unique sites have been identified by the tribes at this time. However, there is much interest in nearly all the drainages in northeast Oregon by various tribes as having special cultural value associated with their history and present-day activities.

> **Finding:** Traditional use and cultural use and cultural values are found to be important in the Dutch Flat Creek System. However***, these values were not found to be outstandingly remarkable*** as they are fairly typical of other rivers in the region.

CLASSIFICATION
Eligibility Determination: Rock Creek/Kilamacue Creek meets the minimum eligibility requirements as specified by the Wild and Scenic rivers Act. It is found to be free-flowing and current information supports the findings that four outstandingly remarkable values are present. These outstandingly remarkable values are: Scenery, Recreation, Geological, and Botanical/Ecological

Stream Study Segments
Killamacue Creek
Segment 1- The entire main stem and tributaries, including the tributary up to the outlet of the dam at Killamacue Lake.

Rock Creek
Segment 1: From the pool limits of the hydropower diversion dam upstream to the confluence of the North Fork of Rock Creek.
Segment 2: From the confluence of the North Fork of Rock Creek to the outlet of the dam at Rock Creek Lake.
Segment 3: All the North Fork of Rock Creek.
Segment 4: The entire tributary with its headwaters in Cougar Basin sometimes referred to as South Fork of Rock Creek.

Water Resource Development
Killamacue Creek: Killamacue Creek is free of impoundments. Killamacue Lake is an impoundment and was excluded from the study corridor. Discharge patterns are not entirely natural because of the released flows from Killamacue Lake.

Rock Creek: The main stem of Rock Creek originates at Rock Creek Lake. Rock Creek Lake was excluded from the study corridor because of the impoundment. The discharge patterns are not entirely natural because of the influence of water storage in Rock Creek Lake. The rest of the main stem of Rock Creek within the study area is free of impoundments. There is a portion of an old diversion at the top of Eilertson Meadow that still diverts water to Eilertson Meadow during high water. It was originally used to divert creek water into Eilertson's trout pond at the lower end of the meadow.

There are no impoundments along the North Fork of Rock Creek which has its origin in Western Union Basin. The creek flows through a historic mining district.

The South Fork of Rock Creek has its origins in Cougar Basin, and there are no impoundments along this fork.

All segments of Rock Creek and all of Killamacue Creek are considered to be eligible as “Wild” in terms of water resource development.

Shoreline Development
Killamacue Creek: Killamacue Creek is dominated by primitive and undeveloped vistas characterized by rock formations and vegetative variety. Habitat types range from the alpine sagebrush/sedge types to grand fir associations in the lower reaches providing a high degree of biological diversity. There is no evidence of past logging nor is there currently any logging activity. The area is essentially primitive with little or no evidence of human activity. Killamacue Creek is considered to be “Wild” in terms of shoreline development.

Rock Creek: The main stem of Rock Creek above the confluence with the North Fork and Cougar Basin are essentially primitive with little or no evidence of human activity. There is currently no livestock grazing and there is no evidence of past timber activity.
The lower half of the North Fork of Rock Creek and the lower reaches of the main stem below the junction of the North Fork and the main stem show evidence of historical mining activity that has taken place on the private lands. There has been some historical logging activity on the private lands. The area is still largely primitive and undeveloped. A primitive road exists within this area.

Segments 1, 3, and the lower half of 4 are considered to be “Scenic” in terms of shoreline development. Segments 2 and the upper half of 4 are considered to be”Wild”.

Accessibility
Killamacue Creek, Cougar Basin, and the main stem of Rock Creek above its confluence with the North Fork are generally inaccessible except by trail. The North Fork of Rock Creek, the lower half of the South Fork, and the main stem below the junction with the North Fork provides opportunity for semi-primitive motorized travel. The roads in this area were constructed to serve the mining activity in the early years. Roads were readily passable to two-wheel drive vehicles as late as the 1950s but have deteriorated with lack of maintenance. Because of the present condition of the road, the area is not readily accessible to the recreating public.

All of Killamacue Creek, segment 2, and the upper half of segment 4 of rock creek are considered “Wild”. The lower half of segment 4, segment 1, and segment 3 are considered to be “Scenic”

Water Quality
The water in all reaches of the Rock Creek System is in pristine condition. It is cool, clear and scenic. Some of the lower reaches, especially through Eilertson Meadow, have depositional features that include sandy-gravel channels.

Killamacue Creek and all sections of Rock Creek are considered to be “Wild” in terms of water quality.

CLASSIFICATION DETERMINATION
All of the four applicable criteria of all segments of Killamacue Creek and segment 2 and the upper portion of segment 4 of Rock Creek indicate these study segments are eligible to be

classified as Wild. Therefore, the study segments of Killamacue Creek, and segment 2 and the upper portion of segment 4 of Rock Creek, if added to the Wild and Scenic Rivers System, are eligible to classified as Wild.

Two of the four Applicable criteria indicate that segment 1, segment 3, and the lower portion of segment 4 of Rock Creek indicate these study segments are eligible to be classified as Scenic. Since these segments have roads and mining developments along portions of the streams, these segments, if added to the National Wild & Scenic Rivers System, are eligible to be classified as Scenic.

Classification: **6.1 miles "Wild"** **8.6 miles "Scenic"**

SHEEP CREEK

A suitability study was conducted on Sheep Creek in the Wild and Scenic River Study report and final legislative environmental impact statement for Eight Rivers administered by the Wallowa-Whitman National forest. In that study, Sheep Creek was not found suitable as a Wild and Scenic river. Given this finding of unsuitability, this stream is no longer considered eligible, regardless of the presence of outstanding remarkable values.

Location: This study focuses on the potential eligibility and classification of Sheep Creek from the Wild and Scenic Snake River boundary to its headwaters. The entire study river corridor lies within the Hells Canyon Wilderness in the Hells Canyon National Recreation Area in Idaho County, Idaho. The study corridor is part of the Nez Perce National Forest but is administered by the Wallowa-Whitman National Forest. The area contains no private land.

River Mileage:
Studied: 15.8 miles
Eligible: 15.8 miles

Eligibility:
Determination of Free-flow:
The entire study segment, which contains no dams or diversion structures, is ***found to be free-flowing***.

SCENERY

Determination of Outstandingly Remarkable Values: The Sheep Creek drainage lies entirely within the Hells Canyon Wilderness in the Hells Canyon National Recreation Area. Sheep Creek is composed of two main forks, the West Fork and East Fork.

The variety of landforms, water, color, and vegetation present throughout the Sheep Creek drainage is one of the most attractive attributes of the study corridor. Ecosystems are undisturbed, and natural processes dominate.

The headwaters of West Fork Sheep Creek originate in and above Sheep Lake, a glacial cirque lake, high on the east slope of the Seven Devils Mountains. The East Fork Sheep Creek also begins in a glacial cirque in the Seven Devil Mountains and merges with the West Fork at 4,200 foot elevation to become Sheep Creek. From its beginning, on the 9,000 foot rocky slopes of He

Devil and She Devil, the West Fork follows a steep gradient over small waterfalls and bouldery white water rapids as it descends from the mountains. Vegetation in the classic u-shaped glacial valley starts out at the higher elevations as grasses, mosses, and alpine tundra interspersed with a whitebark pine and stunted subalpine fir. The trees are small and sculptured by the wind. As one loses elevation, fingers of subalpine fir and Engelmann spruce intrude into the meadows.

Expansive views of the Seven Devils Mountains are afforded from every meadow opening. Numerous avalanche chutes, talus slopes, lakes, landslides, waterfalls, and scoured rock outcrops create a highly diverse and dynamic landscape that vies for attention with the crystal clear creek.
In contrast, the upper reaches of East Fork Sheep Creek are almost completely forested with subalpine fir and Engelmann spruce. Talus slopes and rock outcrops with alpine tundra and scattered whitebark pine intrude into the forest in places, but these intrusions are minor and only occur at the extreme upper portion of the headwaters.

Scenic views in the upper portion of the West Fork are dominated by He Devil, She Devil, and the Tower of Babel which rise dramatically above Sheep Lake. Between the Devils, a snow-filled couloir runs up to the ridge top (Fuller 1982).

Visitors can enjoy views of the upper West Fork cirque basin from the Sheep Creek Lakes Trail (FS #123), which briefly enters the study corridor from the west accessing the south end of Sheep Lake. An unnamed and unmapped trail accesses the north end of Sheep Lake from the Seven Devils Campground via Mirror Lake providing picturesque panoramic views of the area.

The Sheep Creek Trail (FS #53) and the Seven Devils Trail (FS #124) provide access into the East Fork from Windy Saddle providing dramatic views of the upper East Fork drainage.

Throughout the corridor, seasonally abundant wildflowers color the streambanks, cliffs, and forest floor with splashes of red, purple, yellow, white, and blue in the spring and summer. Fields of bracken fern provide attractive contrasting fall colors. Western larch provides a dramatic color contrast in the forest in the late fall as they turn golden, and in the springtime as the new green needles emerge. Picturesque stands of old growth orange-barked ponderosa pines can be seen in places throughout the corridor.

From Sheep Lake, the West Fork drops rapidly out of the cirque basin over large boulders and several small falls. This stretch is dominated by talus slopes, shear cliffs and Devils Tooth, a column of rock that towers 200 to 300 feet above the surrounding range. The Seven Devils Trail crosses the West Fork at this point and provides excellent views of Devils Tooth and the middle and lower drainage. The West Fork slows its descent to a 10 percent gradient and enters dense forests of sub-alpine fir, Engelmann spruce, and grouse huckleberry. From 6,000 to 4,000 feet it enters a v-shaped canyon and flows through mixed conifer forests of Douglas-fir, grand fir and western larch. At an elevation of 4,200 feet it merges with East Fork to become Sheep Creek.

The East Fork starts in dense forests of sub-alpine fir, Engelmann spruce, and grouse huckleberry and flows east beneath talus slopes which rise abruptly to the south of the study corridor. Below Windy Saddle the creek turns north, the streambed narrows and the creek drops rapidly over boulders and small falls. From 6,000 to 4,000 feet the creek flows through dense mixed conifer forests of Douglas-fir, grand fir and western larch which continue until it merges with the West Fork.

Below the confluence of the West and East Forks, Sheep Creek again slows its descent on a 7 percent gradient and passes through quiet pools. Below 4,000 feet orange-barked open stands of old-growth ponderosa pine line its slopes. At 3,000 feet, the stream enters a v-shaped rocky canyon and takes on a character of the lower Snake River Canyon. In the upper canyon, slopes are composed of solid rock outcrops interspersed with bunchgrass. In the lower canyon, hardwoods and shrub communities form dense communities along the river bottom.

For hikers and horseback riders on the Sheep Creek Trail, the change in vegetation provides some of the starkest contrasts in the Hells Canyon area. Where the Sheep Creek Trail crosses Old Timer Ridge, the view changes abruptly from a green densely forested subalpine setting, to that of brown bunchgrass covered canyon slopes, astounding recreation users in the area.

At the mouth of Clarks Fork, the Stormy Point Trail (FS #108) enters the corridor from the north and provides good views of the lower Sheep drainage.

The Sheep Creek study corridor ends at the 1,600-foot elevation where it meets the Snake River Wild and Scenic River corridor. Here the creek is 30 to 40 feet wide and several feet deep and becomes a boulder roaring torrent in the early spring.

A recent visual resource inventory of the area determined that most of the drainage possesses a “Class A – Distinctive” landscape variety. There are some small areas of “Class B – Common” landscapes in the middle and lower portions of the West Fork and the upper portions of East Fork where coniferous tree cover is uninterrupted. The Heavens Gate Scenic Overlook lies on the east side of the canyon, just outside the study corridor, and is the most popular Hells Canyon Overlook in Idaho. From this viewpoint, accessible off Forest Road #517, one can view the entire East Fork and mainstem of Sheep Creek as well as Hells Canyon. Sensitivity levels were not listed in the survey since the area is entirely in wilderness, but if listed, would be Level 1 due to the many viewpoints and trail systems in the area.

Visual impacts due to human modifications (except for trails, and some past evidence of livestock grazing in the extreme lower corridor) are virtually non-existent.

> **Finding:** The Sheep Creek study corridor possesses a great deal of diversity in landform, water, color, and vegetation, notable in the geographic region. Some of the attractions that combine to create Sheep Creek’s scenic beauty are the glaciated landscape, numerous waterfalls, and dominant views of Sheep Lake, Devils Tooth, Tower of Babel, He Devil, and She Devil, in the upper portion of the West Fork; the steep forested canyon in the middle portion of West Fork and the upper and middle portions of East Fork; and stark abrupt change to the grasslands in the lower portion of Sheep Creek. In addition, the contrasts between the lush green meadows, subalpine forests of the upper portion, the western larch/Douglas-fir/grand fir, ponderosa pine forests in the middle portion, and the grass covered slopes with prickly pear and greenbush in the lower portion is notable. The variety of the stream’s rapids, waterfalls, and deep pools is also adds scenic diversity to the area. The entire drainage, for its whole length from rim to rim, is essentially undeveloped, presenting a vestige of primitive America. The outstanding beauty of Sheep Creek as viewed from the trails within the drainage as well as from the Heavens Gate Scenic Overlook just outside the study corridor ***warrants a finding of outstandingly remarkable scenery in the study corridor.***

RECREATION

Determination of Outstandingly Remarkable Values: The entire Sheep Creek study corridor, including the East and West Forks, is located within the boundaries of Hells Canyon Wilderness in the Hells Canyon National Recreation Area.

Although one of the two largest streams located within the Idaho portion of Hells Canyon Wilderness, it receives little direct recreation use. Primary recreation use within Hells Canyon Wilderness is oriented towards the area's many alpine lakes. The Sheep Creek Trail (FS #53) traverses the entire East Fork drainage from the headwaters on the East Fork, to the Snake Wild River boundary, a distance of nearly 16 miles. The corridor also contains small portions of the following trails: the Stormy Point Trail (FS #108), which connects the Sheep Creek Trail to the Low Saddle Viewpoint, the Bernard Creek Trail (FS #58) which provides an alternate access to the Snake River via Sawyer and Bernard Creeks, the Old Timer Trail (FS #110) which connects the Sheep Creek Trail to the South Fork of Squaw Creek, and the Seven Devils Trail (FS #124) which crosses the East Fork near its headwaters. There is no trail accessing the West Fork of Sheep Creek, although the Seven Devils Trail (FS #124) makes one crossing of the stream, and the Sheep Creek Lakes Trail (FS #123), a spur off the Seven Devils Trail, accesses the south end of Sheep Lake from the west.

With the exception of the Seven Devils Trail (FS #124), and Sheep Lakes Trail (FS #123), most of these trails receive very little use. This is primarily due to the lack of popular destination points along the East Fork drainage, and little evidence is seen of visitors actually recreating on or along the stream. When used, the trail through the corridor acts mainly as a means for visitors to travel from the high elevation country of the Seven Devils to the Snake River. The highest level of use within the corridor occurs during the fall hunting season, when a few stock supported parties will use the area in pursuit of elk.

The headwaters of the West Fork Sheep Creek contain Sheep Lake, a popular destination point for wilderness users. Recreationists begin using this area in late June to early July, and will continue through October, or until fall snows make access impossible. Visitors travel to this area mainly to fish, camp, and enjoy the outstanding scenery. This use is mainly associated with Sheep Lake and the lakes west of it (outside the study corridor), with most visitors totally unaware of the presence of the stream below Sheep Lake.

Use in the vicinity of Sheep Lake is categorized as moderate, and is comprised of visitors from throughout the country. Most visitor use originates at the Windy Saddle Trailhead. These visitors access Sheep Lake via the Seven Devils Trail and Sheep Lakes Trail (moderate use through the study corridor) or cross country from Seven Devils Campground on a user trail know as the "Goat Pass Trail" (outside the study corridor).

The study corridor also contains the lower northern flanks of He Devil (elevation 9,393 feet) and nearly to the summit on the north flank of She Devil (elevation 9,300 feet) which dominate the landscape above Sheep Lake. Both mountains provide challenges for mountain climbers, but use is light.

There are no developed campgrounds within the study corridor but the Seven Devils Campground with seven tent sites and the Windy Saddle Campground with four tent sites, a picnic area, horse corrals, and a trailhead, are located just above the East Fork study corridor.

Finding: Although the remote and pristine nature of the Sheep Creek drainage contributes to the high potential for recreation opportunities, the drainage and stream itself are typical of the semi-primitive, primitive and pristine Wilderness Resource Spectrum settings in the region. With the exception of Sheep Lake, recreation use levels in association with the drainage and stream are very low. Since Sheep Lake is such a small portion of the corridor and the more heavily-used portions of the Seven Devils Trails lie almost entirely outside the corridor, ***the finding is that recreation does not qualify as an outstanding remarkable value.***

WILDLIFE

Determination of Outstandingly Remarkable Values: *Populations:* The area designated as the Hells Canyon National Recreation Area supports approximately 360 wildlife species. The Sheep Creek study corridor plays a part in the habitat supporting these species. Some of these species are regionally or nationally important. A variety of songbirds (neotropical migrants), elk, deer, black bears, cougar, golden eagles and other raptors, rattlesnakes, and chukar are common in and around the study corridor.

Many of the species are wide-ranging, and will pass through or forage within the corridor (e.g., deer, elk, mountain goats, bighorn sheep). Some of these species are listed as endangered, threatened, sensitive, or are of special concern to land management agencies (e.g., wolverine, peregrine falcon, marten, fisher, goshawk). There is potential use of the study corridor by wolves and grizzly bear due to the presence of these species in other parts of Idaho. There is documented use of the corridor by endangered peregrine falcons.

There is also the likelihood that the harlequin duck (listed on the Regional Forester's Sensitive Species list), and tailed frog (listed on the Idaho State sensitive list) which are dependent on riparian areas and streams, would be found within the Sheep Creek study corridor.

Habitat: The study corridor is inherently diverse. Their headwaters are in sub-alpine ecotypes, characterized by stunted white bark pine, then flow through more fir/pine associations, and finally to open rock and grasslands. Small meadows are dispersed throughout some of the upper portions. Elevations start at approximately 9,000 feet and end at approximately 1,600 feet. This diversity of habitat lends itself to a diversity of wildlife species in a small area.

The corridor provides a link for migrating species from mild wintering areas along the confluences with the Snake River, to the upper slopes and forests for breeding. Most of the study corridor is inaccessible by land. This area is likely used by migrating birds. In fact, due to its inaccessibility, it likely contains valuable breeding habitat and security. The topography lends itself to be territorial boundaries of individuals within

Finding: The diversity of the present habitat, inaccessibility, and quality of the habitat as well as the present and potential use of the area by threatened and endangered species (e.g., peregrine falcon, wolf, grizzly bear) ***justifies a finding of outstandingly remarkable wildlife values in the Sheep Creek study corridor.***

FISHERIES

Determination of Outstandingly Remarkable Values: Sheep Creek supports populations of fish species that are regionally and nationally important. Sheep Creek also supports a diverse

assemblage of fish species. These include bull trout, which is an indicator of high-quality, clean and coldwater habitat; steelhead trout; rainbow trout; and spring/ summer Chinook salmon.

Chinook Salmon
On May 22, 1992, the National Marine Fisheries Service (NMFS) officially listed the Snake River spring/summer Chinook salmon as threatened species under the Endangered Species Act. The listing was recently changed to "endangered." Sheep Creek was designated critical habitat for Snake River spring/summer Chinook salmon as interpretation of Federal Register Notice dated December 28, 1993.

Snake River spring/summer Chinook salmon migrate above all eight dams to spawn in smaller streams at high elevations. There are five major spawning and rearing basins for these stocks, including the Salmon, Grande Ronde, Clearwater, Tucannon, and Imnaha River basins. Sheep Creek is located within the Snake River Basin and has documented 1.5 miles of spawning and rearing habitat.

Current run sizes in the Snake River Basin reflect the interaction of variable environmental conditions, such as oceanic productivity and weather patterns, and a variety of management activities. Four major management activities that have contributed to the decline of Chinook salmon are hydroelectric development and operation, fish harvest, fish hatchery influences on disease and genetic fitness, and fish habitat conditions (Leonard, 1993).

Spring/Summer Chinook Salmon: A low estimate of total Chinook salmon produced from the Snake River Basin prior to 1850, based on the amount of habitat available, was 1.4 million fish. Other estimating methods suggest the run could have been twice this size. By the mid-1900s, historical abundance of spring/summer Chinook from the Snake River had been reduced by 95 percent. In the last 30 to 40 years, abundance has decreased another tenfold. Current populations of wild fish are only 0.5 percent of historical levels. The Snake River wild spring/summer Chinook population, as indicated by the number of spawning redds, declined from 13,000 redds in 1957 to 620 redds in 1980. The number of redds increased gradually through 1988 to 3,395, but has since declined. In 1989, 1,008 redds were counted, and in 1990, 1,224 redds were found (U.S. Army Corps of Engineers 1992).

Formal surveys to document the present and historical numbers of returning spring/summer Chinook adults in Sheep Creek (within the Snake River Basin) have not been performed. It is estimated that numbers have decreased in the same trend as that found in the Snake River Basin. It is indicated by Keiler (1993) that there are very low numbers of spring/summer Chinook using Sheep Creek. Sheep Creek is in wilderness and conditions have changed little since the time Chinook were reported using this stream. The major cause of non-use today appears to be a lack of returning adult spawners.

Furthermore, this creek has a low flow volume, and may not have been used by Chinook every year in historical times.

Steelhead/Rainbow Trout
Summer steelhead *(Oncorynchus mykiss)* are presently listed on the Regional Forester's and the State's Sensitive Species lists.

Summer steelhead are also an important anadromous fish species in the Sheep Creek portion of the Snake River System. Escapement numbers for the Snake River are unknown prior to construction of the four lower Snake River dams. The total escapement (native and hatchery) is

currently estimated at 114,800. Under present hatchery plans, native stock is expected to be used for hatchery supplementation programs. This plan recommends maintaining stock integrity of native fish as much as possible (Herrig, D., 1991).

Formal surveys to document the present and historical numbers of returning summer steelhead adults within Sheep Creek have not been performed. It is estimated that numbers have decreased in the same trend as that found in the Snake River Basin.

Bull Trout
Bull trout are present in Sheep Creek. Limited presence/absence distribution data suggests that a population exists from the confluence with the Snake River to 1 mile upstream; and they are suspected to exist from that point upstream for about 5.5 miles **(**Wallowa Mountains Fisheries Zone snorkel data, 1992). At present, no population data exists for bull trout in Sheep Creek.

Habitat
The existing condition of six limiting factors can be rated as excellent in the surveyed Chinook habitat in Sheep Creek. Sediment, large woody material (LWM), pools, stream shade/canopy cover, and bank stability are not limiting production of present spring Chinook. More data is needed to determine whether or not temperature or streamflow are affecting Chinook, but limited information indicates they are not. The Desired Future Conditions for the six assessable limiting factors are already being met in the existing condition.

Habitat potential is excellent for Sheep Creek.

> **Finding:**
> ***Fisheries values in Sheep Creek are found to be outstandingly remarkable*** due to the presence of federally listed endangered spring Chinook salmon; Regional Forester's and State Sensitive summer steel head trout; native rainbow trout; and category 1 bull trout populations. In addition, fisheries values in Sheep Creek are found to be outstandingly remarkable in that Sheep Creek supports populations of fish species that are regionally and nationally important, and due to its high-quality fisheries habitat for indigenous stocks.

HERITAGE (Historic)

Determination of Outstandingly Remarkable Values: Sheep Creek is within the ceded boundaries of the Nez Perce Tribe. Preliminary archaeological investigations within Sheep Creek have revealed some housepit clusters in the lower drainage, which were occupied mostly in prehistoric times. It is certain that tribal members traveled farther upstream along Sheep Creek for hunting, fishing, and gathering in the corridor and through Windy Saddle to connect with trails into the Riggins area

The closest old historic homestead is the Sheep Creek Ranch, homesteaded by William McLeod in 1884 (1 mile downstream from the corridor at the mouth of Sheep Creek). It traded hands several times and was purchased by the Forest Service in 1976. Other than this site, which is entirely outside the corridor, there is no evidence of early homesteading or historic structures in the study corridor.

> **Finding:** The Sheep Creek study corridor plays a vital role in Nez Perce tribal history, but there are few sites in the corridor of historical interest. The area contains no known homesteads or sites that are notable in the geographic region or in terms of significant

events. Therefore, the finding is that Heritage (Historic) Resources ***do not warrant outstandingly remarkable status in the study corridor.***

HERITAGE (Prehistoric)

Determination of Outstandingly Remarkable Values: Sheep Creek is a vital part of Native American history. For thousands of years, up until the 1870s, Native Americans occupied the lower Sheep Creek Valley. The entire area from the mouth of Sheep Creek upstream for several miles was at one time a large village site. Other camps were scattered along bottom of the Snake and farther up Sheep Creek as well. Preliminary archaeological investigations within Sheep Creek have revealed 12 housepit clusters in the lower drainage. Together these clusters form a housepit village complex that is nearly 1.5 miles in length. The Sheep Creek drainage has the highest density of housepit occupations of any Snake River tributary within the Hells Canyon NRA. It is certain that tribal members traveled farther upstream along Sheep Creek for hunting, fishing, and gathering in the corridor and through Windy Saddle to connect with trails into the Riggins area.

Much of the remainder of the Sheep Creek study corridor has not been inventoried for the presence of archaeological resources. Those areas that have been surveyed were found to contain a dense concentration of prehistoric sites. It can be safely assumed that many more sites are yet to be discovered.

> **Finding:** Extrapolating from the known significant sites including a large village, the Sheep Creek study corridor contains a unique concentration of prehistoric sites. As a consequence of the known heritage resources present in the corridor, and surely to be strengthened by future discoveries, this ***finding has determined that Heritage (Prehistoric) Resources are an outstandingly remarkable value.***

GEOLOGY

Determination of Outstandingly Remarkable Values: The Sheep Creek drainage lies partially within the Northern Rocky Mountains physiographic province and partially within the Snake River Trench sub-type of the Blue Mountains physiographic province. Both provinces span a large part of the geologic time scale from the Permian period to the Pleistocene. The stream drops 7,400 feet into Hells Canyon of the Snake River, helping to form part of the deepest gorge in the western hemisphere.

Sheep Creek originates in the glaciated Seven Devils Mountains. The highest peaks of the Seven Devils, including He Devil, She Devil, and the Tower of Babel dominate the upper reaches. The upper valleys are U-shaped and classic alpine glacial features such as cirques, carved peaks, lakes, and cliffs, waterfalls, and pinnacles, are visible. Elongated carve knobs, called roche moutonnees, are found on the valley walls parallel to the direction of the glacier movement. In the middle portion, Devils Tooth, a 200- to 300-foot rock pinnacle dominates the view from the Seven Devils Trail.

The lower portions along the Snake River Canyon were carved out when the Great Basin faulting lifted portions of Idaho and Oregon backed up the Snake River creating a large lake over southern Idaho. North/south fissures allowed Sheep Creek to cut sharply through these new uplands. The Snake cut its canyon back into the lake and the waters poured into the Columbia and cut Hells Canyon. When this happened, the crust east of the canyon floated upward and created the Seven Devils Mountains.

The predominate rock types along the drainage and in the headwaters area are the tightly folded and metamorphosed sedimentary and volcanic rocks of the Seven Devils complex. Many are considerably sheared and metamorphosed just enough to make it difficult to know what the original rock may have been. The Seven Devils complex is basically a series of deformed volcanoes and the rocks that formed adjacent to the volcanic chain.

Vast basalt lava flows of the Columbia River lavas covered much of the lower Snake River region, including the Sheep drainage, in the Middle Miocene. Very fluid basaltic lavas begin to erupt and pour from cracks and fissures in northeastern Oregon, southeastern Washington, and western Idaho. Basalt poured from many simultaneously erupting fissures, covering most of the older landforms. The average thickness of the Yakima basalt layers was 50- to 100-feet thick, with pooling occurring in some areas to a thickness of 200 feet or more.

Melting waters and debris from Pleistocene glaciation greatly accelerated the erosion of the canyon of Sheep Creek, exposing layers of basalt, red scoria, and interbedded sedimentary rocks. The typical lava flow layering and columnar basalt 10 to 100 feet thick are exposed in the middle and lower canyon. Interbedded sedimentary rocks consisting of mudstone, clay, lignite, and sandstone can be seen between some lava layers. Plant fossils may be found in the interbeds.
Rocks older than the Miocene Columbia River basalts (pre-Cenozoic) represent displaced fragments of volcanic, island arc, plutonic, and oceanic crust, and sediments which were accreted (welded) to the Mesozoic Continental margin by folding and thrust faulting.

The study corridor contains no mining claims or known economic mineralization. Due to Wilderness designation, the entire study corridor has been withdrawn from mineral entry.

> **Finding:** The geology of Sheep Creek is an interesting resource of this rugged mountain and canyon country. It has been an attraction to several generations of residents. Much of northeast Oregon geology, southwestern Washington, and west central Idaho is typified by Columbia River basalt canyons, exposed by the down-cutting of rivers. The middle and lower portions of Sheep Creek lie in a 3,000-foot-deep canyon, but the canyon is typical of basalt canyons along the Snake River. Although the geology in the Sheep Creek drainage provides some of the most spectacular scenery in the Seven Devils Mountains, the geologic features in the upper portion of Sheep Creek are similar to the entire Northern Rocky Mountain area. The geology of Sheep Creek is typical of the region, and therefore ***does not merit a finding of outstandingly remarkable.***

BOTANICAL/ECOLOGICAL

Determination of Outstandingly Remarkable Values: The Snake River Canyon and its tributaries are known to be one of the most floristically diverse areas in the northwestern United States. There are a number of probable causes for this diversity, but most important is the range of elevation which occurs over a relatively short distance between the Snake River and Seven Devils.

Most plant species have adapted to life within a specific elevation zone and generally will not be found in both high and low elevations. With its headwaters at 9,000 feet in the Seven Devils, Sheep Creek drops 7,400 feet through the Hells Canyon Wilderness to the confluence with the Snake. Ecosystems are relatively undisturbed and natural processes dominate within this undeveloped river reach. Along the way, Sheep Creek flows through no less than four major

vegetation types. In the headwaters, the area is dominated by sub-alpine vegetation composed of wet and dry meadows of sedge, rush, alpine grass, and heather. Stringers of whitebark pine and subalpine fir reach these elevations. This transitions into open forests of sub-alpine fir, Engelmann spruce, and grouse huckleberry. Mixed conifer forest of Douglas-fir, grand fir and western larch dominate from 4,000 to 6,000 feet, with dense stands of Pacific Yew in the riparian areas. Below this zone, ponderosa pine is the predominant tree species, forming a mosaic of open forest and grassland habitat. Below 3,000 feet, the lowest reaches are dominated by bunchgrass and shrub communities. Riparian vegetation along the extreme lower stream elevations includes: white alder, birch, cascara buckthorn, choke cherry, hackberry, western serviceberry, and ocean spray.

A plant inventory of Sheep Creek has not been conducted and it is unknown whether populations of PETS plant species occur. There are a number of PETS plant sites which are known in the vicinity of Sheep Creek and may potentially occur within the Sheep Creek drainage. These species include Hazel's prickly phlox, Bartonberry, goldback fern, Wolf's currant, American wood sage, and perplexing halimolobos.

The entire corridor is characterized by old growth forests interspersed with rock outcrops.

A few acres within the study corridor near the mouth of Lightning Creek are part of the 2,100-acre potential Lightning Creek Research Natural Area as proposed by the Wallowa-Whitman National Forest Land and Resource Management Plan. The area within the study corridor contains the following representative ecologic cells: Idaho fescue-bluebunch wheatgrass, Idaho fescue/prarie/junegrass, Idaho fescue/Hood's sedge.

> **Finding:** The Sheep Creek drainage has potential habitat for six PETS plant species, which are known from the local vicinity of Hells Canyon. Perhaps more unique to Sheep Creek itself is the diversity of plant species and the number of plant communities found in the corridor which encompass at least four major habitat types. It is a combination of these two factors that make ***the botanical and ecological values of the Sheep Creek corridor outstandingly remarkable.***

TRADITIONAL USES/CULTURAL VALUES:

Determination of Outstandingly Remarkable Values: Sheep Creek is included within the ceded boundaries of the Nez Perce Tribe. Archaeological surveys and historic records indicate that the area was used by the Nez Perce Tribe in prehistoric and historic times for village sites, fishing, hunting, and gathering. Other tribes such as the Shoshone also occasionally utilized the area. In recent times, visits by Native Americans to the Sheep Creek area have diminished to a few visits each year.

> **Finding:** No extensive cultural resource inventory has been completed on Sheep Creek and no regionally unique sites have been identified by the tribes at this time. There is much interest in nearly all the drainages in western Idaho by various tribes as having special cultural value associated with their history and present-day activities. This is especially true for the Nez Perce Tribe. Also, those rivers having anadromous fish runs are of interest to all tribes. Traditional Use, Cultural Values are found to be important in the Sheep Creek study corridor. However, ***these values were not found to be outstandingly remarkable*** since they are fairly typical of other rivers in this region.

CLASSIFICATION
Eligibility Determination: Sheep Creek meets the minimum eligibility requirements as specified by the Wild and Scenic Rivers Act. It is found to be free-flowing and current information supports the findings that five outstandingly remarkable values are present. These outstandingly remarkable values are Scenery, Botanical/Ecological, Fisheries, Wildlife, and Heritage (Prehistoric) Resources.

Water Development
There are no impoundments in the study corridor. Because of that the entire study segment of Sheep Creek qualifies for a classification of "Wild."

Shoreline Development
The upper portion of Sheep Creek was part of the Granite Sheep and Goat Allotment that had been vacant since 1969 and is now officially closed. The lower portion of Sheep Creek was part of the Sheep Creek Sheep and Goat Allotment that had been vacant for 11 years before it was officially closed in the Hells Canyon NRA Comprehensive Management Plan (USFS, 2003). Evidence of grazing in the study corridor is minimal since it has been 11-36 years since there was any grazing in the watershed, and the sheep tended to concentrate on the upper ridges rather than the stream bottoms.

The area is pristine and undeveloped. There is little or no evidence of man except for a few trails and recreation users in the area. This warrants a classification of "Wild."

Accessibility
The area contains no developed roads. Access into the area is limited to a system of trails. The lack of roads throughout the corridor qualifies it for a "Wild" classification.

Water Quality
Sheep Creek is pure, clear and cold as it rapidly descends from the slopes of the highest peaks in the Seven Devils Mountains. Due to the lack of human activity in the study corridor it is highly probable that stream temperatures area at their natural and historical site potential and meet Idaho Water Quality Standards of 50 degrees Fahrenheit for a bull trout stream (EPA, 1997).The entire study portion of Sheep Creek qualifies for a "Wild" classification.

CLASSIFICATION DETERMINATION
All four classification attributes meet the "Wild" standards for the study corridor. Sheep Creek's shorelines are pristine and the area is free of roads, impoundments, and evidence of man. The creek is inaccessible except by trail, and its waters likely meet Idaho Water Quality Standards. Thus, the entire Sheep Creek study corridor qualifies for a "Wild" classification.

Classification: 15.8 miles "Wild"

SWAMP CREEK

A suitability study was conducted on Swamp Creek in the Wild and Scenic River Study report and final legislative environmental impact statement for Eight Rivers administered by the Wallowa-Whitman National forest. In that study, Swamp Creek was not found suitable as a Wild and Scenic river. Given this finding of unsuitability, this stream is no longer considered eligible, regardless of the presence of outstanding remarkable values.

Location: This study focuses on the potential eligibility and classification of a 16.8-mile section of Swamp Creek, from the Wild and Scenic Joseph Creek boundary to the National Forest boundary near Elk Mountain (Section line between Section 32, T. 2 N., R. 45 E., and Section 5, T. 1 N., R. 45 E., W.M.).

River Mileage:
Studied: 16.8 miles
Eligible: 16.8 miles

Eligibility
Determination of Free-flow:
The entire study segment, which contains no dams or diversion structures, is ***found to be free-flowing.***

SCENERY

Determination of Outstandingly Remarkable Values: The 16.8-mile Swamp Creek study corridor provides a variety of scenery from arid steppe canyon country to rolling forested hillsides with grassy meadows. The lower three miles below the Davis Creek confluence is an example of the steep, rimrock-exposed canyons found in Northeast Oregon. Here, Swamp Creek is very similar in height to Joseph Canyon, approximately 2,000 feet from rim top to canyon bottom, but much narrower, only 200 feet in width.

This lower section of Swamp Creek is dominated by grassy, open slopes and benches. Looking up or down river, the view of slope is limited due to the narrow canyon and riparian vegetation. The vertically "layered" topography common in Joseph Canyon is not visible here. There are however, many horizontal layers of Columbia River basalt (rim rock) that are exposed on the slopes from canyon bottom to rim top.

The area is characterized as an arid, steppe vegetation canyon. Large expanses of grass and grasslike elk sedge and pine grass communities, dominated by Idaho fescue, bluebunch wheatgrass, Sandberg's bluegrass, prairie junegrass, and introduced cheatgrass, cover the slopes and benches.

In places, stringers of trees, such as ponderosa pine and Douglas-fir, grow in the side drainages where a few streams flow toward Swamp Creek during the wetter season(s). A few of the north-facing slopes have conifers scattered on the entire 2,000-foot face.

The narrow riparian zone along Swamp Creek is a "greenbelt" of vegetation, even in the driest seasons. Immediately adjacent to the creek, a variety of hardwood species fills the narrow canyon, making visibility and travel difficult. Other water-loving shrubs and grasses, sedges, and rushes fill this healthy riparian area.

Upstream from Davis Creek, the canyon opens up, slopes are gentler, and there is more timber. The river is now 1000 feet below the ridge tops and the riparian width increases from 100 to 300 feet. Transitioning between the dry slopes and streamside vegetation, young black-barked and older orange-barked ponderosa pines are scattered about ¼-mile each side of the stream. Just south of the Swamp Creek Cow Camp dense ponderosa pine forests, about ¼-mile wide, border the riparian zones on each side of the creek. An occasional western larch occurs here, too. Douglas-fir and grand fir grow on the wetter sites. Above these are the dry arid grass-

covered slopes. About a mile south of the Swamp Creek Cow Camp the riparian area widens to about 1/8-mile and there are many meadows and pastures along the creek.

Swamp Creek itself doesn't vary much in its appearance throughout the study corridor. It is 10- to 20-feet wide and flows north over a gentle gradient through the basalt canyon, with small meanders and a few small bends. In places, the water picks up speed as it riffles through coarse gravels.

Seasonal variations in the canyons highlight the ruggedness of this landscape. Snow on the 4,000-foot-plus rims and on the upper reaches of the study corridor is plentiful. The lower portion however, stays snow-free most of the year.

Springtime comes early to the steppe canyon country of Northeast Oregon, and Swamp Creek is no exception. Snows melt early, leaving behind slopes that are a carpet of lush green grass. If spring rains are abundant, the greenery persists well into late June or early July. Flowers suited to this climate, especially arrowleaf balsam root, yarrow, lupine, yellow salsify, heartleaf arnica, pussytoes, desert parsley, and penstemon, bloom in season until desiccated by the intense heat of summer. The more drought-resistant species survive into the fall.

Summer temperatures in the area are high, and often stay above 80°F for weeks. The grasses on the slopes dry out by midsummer, and the area becomes characteristically brown and dry, save for the trees, shrubs, and riparian vegetation.

Precipitation, when it comes during the summer months, is often in the form of thunderstorms of short duration. Historically, fires begun by lightning from these storms have been occasional. Most recently, in August, 1986, large fires burned through stands of conifer and across grasslands. Some helicopter salvage harvest of the merchantable timber occurred afterwards but it is not evident in the view. The grass slopes turned green again in the springtime; the natural cycle of fire having played its role in maintaining this vegetative mosaic.

On both the canyon rim and creek bottom, evidence of human intrusion is light. A cabin sits on the private land in the Joseph Creek Wild and Scenic River corridor, a mile north of the upper terminus of the Swamp Creek study corridor. It is used, seasonally, by the landowner to administer grazing on the private land. A grazing permittee's cabin and two barns sit at the Swamp Creek Cow Camp and are used in conjunction with the Forest Service grazing allotment. Remnants of an old railroad grade, several old homesteads, and buildings associated with railroad logging, and a few rusty farm implements are located at other sites in the study corridor. A few fences separate the cattle allotments, and grazing occurs during the more "hospitable" months.

The paved Wellamotkin Drive (Forest Service Road # 4600-46) crosses the study corridor near its upper terminus. A private 4-wheel-drive road leaves this road, paralleling Swamp Creek to access the private cabin and Swamp Creek Cow Camp. Another private road on the other side of Swamp Creek parallels this road for the first 3 miles north of Forest Road #4600-46. Another road leaves FR #4600-46 and goes south across private timber company land, paralleling Swamp Creek for 1 mile to the study corridor boundary. The private roads are closed to public use. For the first 3 miles north of Forest Road #4600-46, the study corridor also contains small portions of Forest roads #'s 4600-46, 4600-63, 4600-64, 4600-75, and 4600-79. These roads receive little use and either dead-ends on the hillside above the creek or just pass through a corner of the corridor.

A 1984 visual resource inventory of the area determined the upper roaded portion of Swamp Creek lies in a Sensitivity Level 2 foreground viewshed corridor as viewed from FR #4600-46, with a "Class A – Distinctive" landscape variety. The remainder of the river drainage was determined to be in Sensitivity Level 3 background with a "Class A – Distinctive" landscape variety. The entire area has a Visual Quality objective of Partial Retention.

> **Finding:** Landscape elements of Swamp Creek combine to create an overall pleasing effect to the casual observer. However, landscape features within the middle and upper reaches of the corridor are lacking in diversity. The scenery in the study corridor is typical of many rivers in this geographic region and is determined ***not to be an outstandingly remarkable value.***

RECREATION

Determination of Outstandingly Remarkable Values: Swamp Creek provides a limited range of recreational opportunities due to the topography, remoteness, climatic conditions, and lack of easy motorized access to the river itself. The lower portion of the river is situated approximately 2,000 feet below the nearest paved road, and getting down to it is limited to foot and horseback. The upper 9-mile portion of the study corridor is accessed by a paved road that crosses the corridor near its upper terminus. A primitive road comes off this road and parallels the river to Swamp Creek Cow Camp. Most of the study corridor above the Swamp Creek Cow Camp is private land and is closed to public use. The Forest Service recently acquired by trade all but 476 acres of the private land in the study corridor. This land has since become part of the National Forest System and recreation use will be allowed. A trail right-of-way over private lands south of the Wellamotkin Road retained by the landowners will also be pursued.

Downstream from Swamp Creek Cow Camp, the study corridor lies within the 23,602-acre Joseph Canyon Roadless Area. This area will continue to be managed as a Roadless Area as directed in the Forest Plan for the Wallowa-Whitman National Forest. In general, this management direction will ensure that the area be maintained in a primitive, unroaded state. This area is classified in the Recreation Opportunity Spectrum (ROS) as Semi-Primitive Motorized. These settings are managed to provide a moderate opportunity for solitude, tranquility, and closeness to nature, with a high degree of self-reliance, challenge, and risk in using motorized equipment. The environment appears predominantly natural.

The National Forest portion that is south of the cow camp has a ROS classification of Roaded Natural. These settings are managed to provide opportunities to affiliate with other users in developed sites, but with some chance for privacy. The environment appears mostly natural as viewed from sensitive roads and trails.

The lower part of the corridor is accessed by the Chico Trail (FS #1658), which has a trailhead on State Highway 3 and crosses Starvation Ridge to the Swamp Creek Cow Camp and continues east across the corridor to Miller Ridge. From the Swamp Creek Cow Camp, the Swamp Creek Trail (FS #1678) runs north, paralleling Swamp Creek until it intersects the Joseph Creek Trail (just outside the study corridor). The Driveway Saddle Trail (FS #16788), about a mile south of the mouth of Davis Creek, accesses Miller Ridge from the Swamp Creek Trail. Also included in the study corridor is a small section of the Davis Creek Trail (FS #1660) which connects the Chico Trail with the Swamp Creek Trail. This trail combined with the Chico and Swamp Creek trails provides a loop from the Chico Trailhead, which is used by some day-hikers, horseback riders, mountain bikers, and an occasional motorcyclist. The Swamp Creek

Trail, via the Davis Creek and Chico Trails serves as the main trail access for Wild and Scenic Joseph Creek. Extreme daytime temperatures during the summer months and into early fall make the trip very hot, dry, and dusty.

These factors keep human use in the corridor down to an ambitious few, and typically during spring, summer, or fall. In relative terms, fall season warrants the most use, and is popular for big-game hunting accessed by horseback. Hunters interested in a high-quality hunt in a remote setting are rewarded with an arduous pack-out when successful.

There is one outfitter/guide permit in the corridor, which is used for guided big-game hunts in the fall. These operations are based from a camp located at the confluence of Swamp and Davis creeks.

Swamp Creek, while it supports anadromous fish populations, has low flows in the summer months combined with high water temperatures. While some fishing for resident species does occur, it is unknown what success rate is achieved. Flows in Swamp Creek are too small to float by boat, kayak, or raft.

> **Finding:** The range of recreation opportunities in and along Swamp Creek, including the study corridor, is somewhat limited due to the physical characteristics of the area and the amount of private land. The variety of opportunities is relatively limited, consisting of hiking, horseback riding, hunting, and occasional mountain biking and motorcycle riding. Although the area provides primary access to the Wild and Scenic Joseph Creek corridor, recreation opportunities and uses in the area are typical of other rivers in northeastern Oregon, and are determined ***not to be an outstandingly remarkable value.***

WILDLIFE

Determination of Outstandingly Remarkable Values: *Populations:* Many species of wildlife common to the region inhabit Swamp Creek, including Rocky Mountain elk, mule deer, black bear, cougar, coyote, mountain lion, owls, bobcat, and red-tailed hawks. Bighorn sheep inhabit Joseph Creek Canyon, which is adjacent to Swamp Creek.

A healthy population of black bear exists in the area. Rocky Mountain elk winter in the area and mule deer are also common.

Chukar, mountain quail, and ruffed grouse are found here with blue grouse on the ridges. Many non-game birds inhabit the riparian areas.

Swamp Creek also contains habitat for many species that are of special concern to land management agencies as threatened or endangered (e.g., bald eagle, goshawk, flammulated owls, pileated woodpeckers, white-headed woodpeckers). In fact, there are documented goshawk nest territories within the corridor and a major bald eagle winter roost along Swamp Creek just upstream from the southern terminus of the study corridor. This roost has special interest because of its use in the spring. Bald eagles (USFWS listed as threatened) can be seen foraging and sometimes day roosting within the study corridor. Golden Eagles can be seen in the area as well.

Habitat: Habitat in Swamp Creek is varied due to the dry, upland slopes and contrasting riparian area in the bottom. The relatively narrow riparian zone along Swamp Creek provides a greenbelt of vegetation even in the driest seasons. The area is also largely roadless and

inaccessible except for a trail along the northern portion, and a four-wheel drive road along the southern portion.

The area provides a relatively secure (very little human disturbance) migration route for many species, including big game and migrating birds.

There is a long history of livestock grazing on the grassy slopes of the area. Impacts from grazing and other human use is minimal below the Swamp Creek Cow Camp and minor but noticeable (fences, old corrals, outbuildings, a few old cabins, and 4-wheel drive roads) on the private lands upstream from the Cow Camp.

> **Finding:** While some of the wildlife populations which exist in Swamp Creek may be common regionally, their diversity and the significance of the bald eagle use elevate their importance. This, combined with the large stretch of riparian habitat and relative inaccessibility of the area, ***makes wildlife an outstandingly remarkable resource value in the Swamp Creek corridor.***

FISHERIES

Determination of Outstandingly Remarkable Values: *Populations:* Swamp Creek supports populations of wild summer steelhead and native rainbow trout. Swamp Creek is an important steelhead/rainbow trout spawning tributary to Joseph Creek and is a regionally important producer of wild summer steelhead. Swamp Creek annual ODFW redd counts reported 23.3 redds per mile in 1966, and 11 redds per mile in 1993 (for a 5-mile index area). The Joseph Creek Watershed Mean redds per mile for 1966 was 11.1, and for 1993 it was 4.6.

Summer steelhead *(Oncorynchus mykiss)* is presently listed on the Regional Forester's Sensitive Species List. Swamp Creek is considered high-priority for protecting wild summer steelhead populations and overall fisheries habitat protection because of the existing populations.

Spring/Summer and fall Chinook salmon *(Oncorynchus tshawytscha),* listed as an endangered species by the NMFS, are not currently present in Swamp Creek or Joseph Creek, but Joseph Creek (which Swamp Creek flows in to) is considered critical habitat for fall Chinook salmon as interpretation of Federal Register notice dated December 28, 1993. (Based on existing information and communications the Forest Service has interpreted designated critical habitat for fall Chinook salmon to occur in the 4.2-mile section of Joseph Creek from its mouth to the confluence with Cottonwood Creek.)

Bull trout are not present in Swamp Creek due to the high streamwater temperatures.

Swamp Creek is considered high priority for habitat protection to protect downstream populations of spring/summer and fall Chinook salmon (in the Grande Ronde system).

Habitat: Current fish habitat conditions in Swamp Creek are generally fair/poor. Limited habitat information available at this time suggests good woody debris pieces per mile (>15 pieces per mile); poor pool frequency (<24 pools per mile for an approximate 25-foot wetted stream width); and poor stream temperatures (>68 degrees F.). The 1986 Joseph Canyon Fire has decreased riparian shade along portions of Swamp Creek and increased the input of woody debris to the stream channel. Swamp Creek has been impacted by logging, grazing, and wildfire. The 1992 stream survey noted some areas of logging stumps along the stream channel, an old railroad

bed, some severely eroded streambanks, burnt riparian vegetation, and large woody debris within the stream system. Forty-one log weirs have been added to Swamp Creek for improvement of fish habitat and currently 11 structures are in need of repair/maintenance to facilitate design goals.

Potential fish habitat condition in Swamp Creek may be good. This stream may have good water storage potential; especially in the upper watershed and once the stream banks and streamside vegetation recovers it may provide better fish habitat and cooler water temperatures to downstream Joseph Creek.

Streamwater temperatures in the Joseph Basin exceed 68 degrees F. The optimum streamwater temperature for rearing steelhead is 50-55 degrees F. Maximum streamwater temperatures have been recorded between 68-75° F on Swamp Creek (at the confluence with Joseph Creek with maximum thermometers for July 24, 1991 through September 18, 1991). The temperature station recorded 29 days out of 52 days of record where stream temperatures exceeded 68 degrees F.

High streamwater temperatures are a limiting factor for salmonid abundance in the Joseph Creek Basin; therefore it is critical that riparian vegetation is maintained and enhanced to help provide shade and cooler water temperatures in this watershed. A riparian enhancement project to improve degraded stream conditions along Swamp Creek was implemented in 1986 on approximately 3 miles of Swamp Creek below Neils Canyon. The project objectives were to lower stream temperatures, and increase pool habitat by planting riparian vegetation and installing woody debris structures. The project area has been fenced to facilitate better management of livestock grazing within the riparian zone.

> **Finding:** ***Fisheries values in Swamp Creek are found to be outstandingly remarkable*** due to the presence of Regional Forester's Sensitive wild summer steelhead trout and native rainbow trout populations in the system. In addition, fisheries values in Swamp Creek are found to be outstandingly remarkable because Swamp Creek supports a wild summer steelhead population that is regionally important, and due to its potential for high-quality fisheries habitat for indigenous stocks.

HERITAGE (Historic)

Determination of Outstandingly Remarkable Values: Swamp Creek is a vital part of Nez Perce tribal history. The confluence of Joseph Creek and the Grande Ronde River was a meeting place for the Nez Perce Tribe, and Chief Joseph and his family and band wintered there. It is certain that tribal members traveled upstream along Joseph Creek to the Swamp Creek corridor, hunting, fishing, and gathering. There are six documented prehistoric sites within the study corridor. These sites appear to represent the physical manifestations of prehistoric hunting and gathering along Swamp Creek.

Less is known about the few historical sites relating to settlement by Euro-Americans along Swamp Creek. A historic railroad logging system accessed the upper portion of the study area to a point just above the Swamp Creek Cow Camp. The area to that point was logged and the logs hauled by rail to Enterprise. Evidence of the logging railroad consists of the primary grade and associated spurs. Ties are visible along some portions of the grade as are the remnants of numerous collapsed structures. This portion of the study corridor remains in private ownership and includes an old homestead cabin that is used from spring to fall for ranching purposes, a few rusty old farm implements, abandoned hayfields, and a few remnants of other old

homesteads and ranching activities. More favorable climatic and growing conditions in the Enterprise/Joseph area made the latter more desirable than Swamp Creek for permanent settlement.

Downstream from the Swamp Creek Cow Camp there is little evidence of early homesteading or other historic structures in the study corridor.

> **Finding:** The Swamp Creek study corridor plays a vital role in Nez Perce tribal history. Most important is the proximity of Swamp Creek to the gathering place for Chief Joseph and his band at the confluence of the Grande Ronde River and Joseph Creek. In addition, the old homesteads and evidence of railroad logging adds to the interpretive potential of the area. ***Heritage (Historic) values are found to be outstandingly remarkable in the Swamp Creek study corridor.***

HERITAGE (Prehistoric)

Determination of Outstandingly Remarkable Values: Swamp Creek was primarily used by the Joseph band of the Nez Perce Tribe, but other tribes visited the area for hunting, fishing, and gathering purposes. Since no extensive heritage resource inventory of the area has been completed, only a couple of prehistoric sites have been identified thus far.

> **Finding:** The few identified prehistoric sites are not notable for the geographic region. However, it is likely that more sites would be found if an extensive cultural survey was completed. Known and discovered sites are protected under existing statutes, regulations, and policy. Because all significant drainages in northeastern Oregon were utilized by Native Americans, in the absence of known rare, one-of-a-kind, or sites with unusual characteristics, or exceptional human interest value(s), Heritage (Prehistoric) Resources were not found to be an outstandingly remarkable value.

GEOLOGY

Determination of Outstandingly Remarkable Values: Vast basalt lava flows of the Columbia River lavas covered much of the Blue Mountain region in the Middle Miocene. Very fluid basaltic lavas begin to erupt and pour from cracks and fissures in northeastern Oregon, southeastern Washington, and western Idaho. Basalt poured from many simultaneously erupting fissures, covering most of the older landforms. The average thickness of the Yakima basalt layers was 50- to 100-feet thick, with pooling occurring in some areas to a thickness of 200 feet or more.

Basalt dikes, which fed younger eruptions, are exposed in the canyon of lower Swamp creek. A series of small mafic shield volcanoes and lava cones are located a short distance east of the study area. Roberts Butte and Elk Mountain are the two predominant examples of these volcanic features.

Melting waters and debris from Pleistocene glaciation greatly accelerated the erosion of the canyon of Swamp Creek exposing layers of basalt, red scoria, and interbedded sedimentary rocks. The typical lava flow layering and columnar basalt 10- to100-feet-thick are exposed in the lower 2 miles of Swamp creek. Interbedded sedimentary rocks consisting of mudstone, clay, lignite, and sandstone can be seen between some lava layers. Plant fossils may be found in the interbeds.

The study corridor contains no mining claims or known economic mineralization.

Finding: Much of Northeast Oregon geology is typified by Columbia River basalt canyons, exposed by the down-cutting of rivers. Joseph Creek to immediate north of the study corridor is a textbook example of this. The lower portion of Swamp Creek although similar to Joseph Canyon is much narrower and lacks many of its geologic features. The middle and upper portions of Swamp Creek lie in a 1000 foot deep canyon, but the canyon is more open and typical of basalt canyons in the area. The geology of Swamp Creek is typical of the region, and therefore ***does not merit a finding of outstandingly remarkable.***

BOTANICAL/ECOLOGICAL

Determination of Outstandingly Remarkable Values: The study section of Swamp Creek considered in this assessment is located at an elevation between approximately 3,800 and 2,760 feet. Vegetation within this area is a mosaic of grassland and forested communities. Grasslands occupy south- and west-facing slopes with relatively shallow soils and are dominated by bunchgrasses such as Idaho fescue and bluebunch wheatgrass. Forested habitat is found on north and east aspects where there has been an accumulation of ash and loess. Dominant tree species include Douglas-fir, grand fir, and ponderosa pine. Adjacent to the creek, shrubs are dominant and include ninebark, mountain alder, mock orange, and dogwood. Past and present human activities within the study river are evident and include logging, an old railroad grade, livestock grazing, hunting, and dispersed camping. As a result, vegetation has been altered to varying degrees as evidenced by the invasion of non-native weedy species such as teasel and thistle.

A plant inventory has not been completed for the Swamp Creek drainage. Inventories in the vicinity of Roberts Butte, to the east of Swamp Creek, have located Henderson's ricegrass, a Forest Service Sensitive species. The ricegrass is always found in very shallow, coarse soils that are characteristically red. It is unlikely that this very specific habitat occurs within the study section of Swamp Creek.

Upstream from the Swamp Creek Cow Camp the extent and condition of the riparian communities has been affected somewhat by the 4-wheel drive roads that parallel Swamp Creek.

There are some problems in the Swamp Creek study corridor with noxious weeds. Knapweed and Scotch thistle have been reported in several areas of the study corridor on both private and National Forest lands.

Finding: Due to the homogeneity of the vegetation and lack of unique habitats, ***botanical/ecological does not qualify as outstandingly remarkable.***

TRADITIONAL USES/CULTURAL VALUES

Determination of Outstandingly Remarkable Values: Swamp Creek is included within the ceded boundaries of the Nez Perce Tribe. The area was used in prehistoric and historic times for fishing, hunting, and gathering. The Confederated Tribes of the Umatilla Indian Reservation (Cayuse, Walla Walla, and Umatilla tribes) also occasionally utilize the area.

Finding No extensive cultural resource inventory has been completed on Swamp Creek and no regionally unique sites have been identified by the tribes at this time. However,

there is much interest in nearly all the drainages in Northeast Oregon by various tribes as having special cultural value associated with their history and present-day activities. This is especially true for the Nez Perce Tribe due to the proximity of Chief Joseph's activities in Joseph Canyon. Also, those rivers having anadromous fish runs are of interest to all tribes. Traditional Use, Cultural Values are found to be important in the Swamp Creek study corridor. However, these values were ***not found to be outstandingly remarkable*** since they are fairly typical of other rivers in this region.

CLASSIFICATION

Eligibility Determination: Swamp Creek meets the minimum eligibility requirements as specified by the Wild and Scenic rivers Act. It is found to be free-flowing and current information supports the findings that three outstandingly remarkable values are present. These outstandingly remarkable values are: Fisheries, Wildlife, and Heritage (Historic) resources.

Water Resources Development
There are no impoundments in the study segment of Swamp Creek. However, there are 41 fish structures within the National Forest portion of Swamp Creek. The structures consist of logs perpendicularly installed across the creek that were intended to create pools downstream for fish habitat. The structures, which have little impact on free-flow, are scheduled to be modified during the summer/fall of 2005 to promote aquatic species passage and allow natural stream processes to maintain pool quantity and quality. Because of that the entire study segment of Swamp Creek qualifies for a classification of "Wild."

Shoreline Development
Downstream from the Swamp Creek Cow Camp evidence of human intrusion is light and is limited to fish structures, several fences, a few stumps from helicopter salvage operations following the Joseph Canyon Fire, and seasonal grazing by cattle. This area is dominated by pristine grasslands and stands of ponderosa pine, Douglas-fir, and grand fir.

Upstream from the Swamp Creek Cow Camp, a cabin sits on the private land, a mile south of the upper terminus of the corridor, a grazing permittee's cabin and two barns sit at the Swamp Creek Cow Camp, and remnants of an old railroad grade, several old homesteads, buildings associated with railroad logging, two private road bridges, and a few rusty farm implements are scattered throughout this segment. A few fences separate the cattle allotments, and grazing occurs during the more "hospitable" months.

Swamp Creek from the downstream end of the Swamp Creek Cow Camp to the Joseph Creek Wild and Scenic boundary is a pristine segment with little evidence of human activity. Like the adjacent congressionally classified "Wild" segment of the Joseph Creek Wild and Scenic corridor, this segment also warrants a classification of "Wild." From the Swamp Creek Cow Camp upstream to the southern terminus of the study corridor, there is a wide range of evidence of past and ongoing human activity along the river. This section warrants a classification of "Recreational."

Accessibility
Downstream from the Swamp Creek Cow Camp the area is part of the Joseph Creek Roadless area and is free of roads. Access is via the Davis, Chico and Swamp Creek trails. The latter, parallels Swamp Creek to its mouth.

Upstream from the Swamp Creek Cow Camp, the paved Wellamotkin Drive (Forest Service

Road #4600-46) crosses the study corridor near its upper terminus. A private 4-wheel drive road leaves this road, paralleling Swamp Creek to access the private cabin and Swamp Creek Cow Camp. Another private road on the other side of Swamp Creek parallels this road for the first 3 miles north of FR #4600-46. Another road leaves FR #4600-46 and goes south across private timber company land, paralleling Swamp Creek for 1 mile to the study corridor boundary. The private roads are closed to public use. For the first 3 miles north of FS Road #4600-46, the study corridor also contains small portions of FS roads 4600-46, 4600-63, 4600-64, 4600-75, and 4600-79. These roads receive little use and either dead-ends on the hillside above the creek or just pass through a corner of the corridor.

The lack of constructed roads in the downstream portion below Swamp Creek Cow Camp qualifies this segment for a “Wild” classification. Upstream of the Swamp Creek Cow Camp, there are several roads in the study corridor, including a private road that parallels the entire 9-mile segment, another private road parallels this road, on the other side of Swamp Creek for 3 miles, and a paved Forest Service road accesses the extreme upper end of this segment. Thus, this segment qualifies for a “Recreational” classification

Water Quality
Swamp Creeks' headwaters are on private grasslands just northeast of Joseph, Oregon. The river flows north, through these grasslands for about 18 miles until it reaches the southern terminus of the study corridor at the Forest boundary.

The 1988 *Oregon Statewide Assessment of Nonpoint Sources of Water Pollution* provides water quality information concerning approximately 110,000 miles of rivers, streams and creeks within or along Oregon's borders. The document lists Swamp Creek as having a variety of moderate and severe water quality problems resulting from non point source water pollution. Limited data show that Swamp Creek does not meet Oregon Water Quality standards for temperature and turbidity, but Swamp Creek is not on the 303(d) list due to lack of data. Elevated stream temperatures are likely due to alack of riparian cover and allow elevation watershed. Summer stream temperatures can exceed 68 degrees Fahrenheit, which is above the state standard of 64 degrees Fahrenheit for rearing steelhead (ODEQ, 2002).

The Statewide Assessment identifies erosion, elimination of thermal cover, disturbance by human or animal traffic, vegetation removal, water withdrawal, reservoir storage and release, altered physical characteristics of the stream, bank filling, channeling/wetland drainage, and animal waste, as the probable causes of the water quality problems found in the river. Nearly all this activity is the result of actions on private land outside the study corridor.

Some stream disturbance in the study corridor has occurred due to past human activities and developments (roads, timber harvest, grazing, etc.) in the corridor itself. This has also, cumulatively impacted the water quality in the corridor. An excellent stream protection project consisting of fenced exclosures and plantings in cooperation with ODF&W has occurred on private timber company lands in the upper mile of the study corridor.

Approximately five miles of the valley bottom containing much the meadow areas, were acquired by the Forest Service in the mid 1990s. This area had historically been overgrazed and railroad logged. Native surface roads were established on both sides of the stream. This section of Swamp Creek has seen exceptional recovery in streambank stability and riparian vegetation in the last ten year, and continues on an improving trend.

The Swamp Creek Hardwood and Wetland Restoration Project is a multiyear restoration project

occurring in Swamp Creek, primarily upstream of the Cow Camp, which began implementation in 2002 and is ongoing. Accomplishments to date include:

- Construction of approximately 10 miles of riparian pasture/protection fence
- Planting, caging, and mulching of 4,800 deciduous shrubs
- Construction of six water gaps in the riparian pasture to allow livestock watering
- Construction of one upland pond and reconstruction of five upland ponds to improve livestock distribution
- Caging of approximately 50 existing heavily browsed native shrubs
- Inventory of upland water sources to facilitate most efficient use of available water and decrease livestock pressure on the stream
- Swamp Creek has been the focal point of a natural resource education program for local high school students
- Yearly collection of seeds and cutting for future planting stock
- Development of a monitoring plan to establish baseline and trends

Swamp Creek does not have water sufficiently pure, clear, or clean water to support a "Wild" Water Quality classification. Water quality criteria do not differentiate between scenic and recreational river areas.

CLASSIFICATION DETERMINATION

The segment downstream from Swamp Creek Cow Camp meets the "Wild" classification for Water Resource Developments, Shoreline Development, and Accessibility.

The segment, upstream from the Swamp Creek Cow Camp, meets the "Wild" classification for Water Resource Developments, and the "Recreational" classification for Shoreline Development and Accessibility. It does not meet the "Wild" classification for Water Quality.

As stated earlier, the overriding determinant for classification is the degree of naturalness, or inversely, the degree of evidence of human activity in the river area. Although it does not meet the "Wild" classification for Water Quality, it has pristine grasslands, untouched tracts of timber and clearly falls into the "Wild" classification overall.

Upstream from Swamp Creek Cow Camp, evidence of human development and activity becomes evident, when timber harvest, roads, old railroad grades, structures, and ranching activities are seen. Although this segment meets the "Wild" classification for Water Resource Development, it does not meet the "Wild" or "Scenic" classification for any of the other classification attributes. Overall, it best qualifies for a "Recreational" classification.

Therefore, the Swamp Creek study corridor, if added to the National Wild and Scenic Rivers System, is eligible to be classified as "Recreational" from the National Forest boundary to (and including) Swamp Creek Cow Camp, and as "Wild" from the Swamp Creek Cow Camp to the Joseph Creek Wild and Scenic River boundary.

Classification: 9.2 miles "Wild" 7.6 miles "Recreational"

UPPER GRANDE RONDE RIVER

A suitability study was conducted on the Upper Grande Ronde River in the Wild and Scenic River Study report and final legislative environmental impact statement for Eight Rivers administered by the Wallowa-Whitman National forest. In that study, the Upper Grande Ronde River was not found suitable as a Wild and Scenic river. Given this finding of unsuitability, this stream is no longer considered eligible, regardless of the presence of outstanding remarkable values.

Location: This study focuses on the potential eligibility and classification of the Upper Grande Ronde River, from its headwaters to the National Forest boundary near the mouth of Fly Creek (Section 23, T. 4 S., R. 35 E., W.M.).

River Mileage:
Studied: 29.8 miles
Eligible: 29.8 miles

Eligibility:
Determination of Free-flow:
The entire study segment, which contains no dams or diversion structures, is ***found to be free-flowing.***

SCENERY

Determination of Outstandingly Remarkable Values: The Grande Ronde River begins above 7,000 feet in the Elkhorn Range of the Blue Mountains, in a portion of the range lacking the dramatic glaciated features typical of the Elkhorns. The high elevation upper reaches are dominated by thick stands of small lodgepole pine, subalpine fir, and Engelmann spruce, providing an almost constant cover of small trees. Much of the larger lodgepole pine was killed in a mountain pine beetle epidemic and has subsequently fallen. Swampy meadows, shallow lakes, and spruce bogs are frequent features in this high mountain landscape. Diversity of vegetation is somewhat lacking in the upper reaches. The pristine nature and lack of cultural modifications is a significant feature of the upper reaches.

Progressing downstream from Tanner Gulch to the National Forest Boundary near the mouth of Fly Creek, the drainage cuts through the moderately dissected basalt plateau uplands and mixed conifer forests typical of the region. Meadows and riparian areas, steep side slopes, rock outcrops, and rimrocks also provide diversity and visual interest. The swift, free-flowing river serves as a continual focal point and contributes significantly to the scenic beauty of the area. Cultural modifications are numerous in the river corridor, which has long been a focus of human interest. Visible cultural modifications include roads, historic and modem structures, mining tailings, a water monitoring station, recreation developments, fences and ranching developments, and evidence of past and present timber harvest activities.

A 1984 visual resource inventory of the area determined the upper unroaded portion of the Grande Ronde river drainage to possess "Class B - Common" landscape variety. The remainder of the river drainage was determined to possess "Class A - Distinctive" landscape variety. Recent insect outbreaks have increased the number of dead and dying trees in the corridor. This, plus the impact of a long-term road construction project and the visibility of other modifications, has had a temporary but significant impact on scenic values in the corridor.

Finding: Landscape elements of the Upper Grande Ronde River combine to create an overall pleasing effect to the casual observer. However, landscape features within the uppermost reaches of the corridor are lacking in diversity, and the roaded section of the corridor has numerous cultural modifications as well as temporary impacts associated with recent insect outbreaks. Scenery is extremely important to the recreational values of the area, and thus requires special consideration in the planning of future management activities in the corridor; however***, scenery is determined not to be an outstandingly remarkable value in this portion of the Grande Ronde River drainage.***

RECREATION

Determination of Outstandingly Remarkable Values: The upper 30 miles of the Grande Ronde River provides a variety of recreational opportunities. Visitors travel to the area primarily to hunt, fish, camp, sightsee, view wildlife, picnic, rock climb, or pan for gold. The unroaded upper reaches of the river provide opportunities for solitude and pursuing activities in a primitive setting. The majority of the river corridor is accessible by road. In 1993 there were two developed campgrounds in the corridor (Bird Track and Spool Cart). Since then, all but Spool Cart, River, and River Picnic have been converted to walk-in, primitive sites. Dispersed camping in open areas and flat spots along the river is popular until late fall.

Camping, picnicking, and fishing activities contribute to moderate use levels during the summer, with existing recreation sites typically half-full during this season. Heaviest use in the river corridor occurs during hunting season (August-November). Facilities are filled beyond capacity during this time.

Finding: The quality and variety of recreational opportunities available along the Upper Grande

Ronde River makes it a popular area with local and regional visitors. The river corridor is an excellent area for viewing wildlife such as Rocky Mountain elk, mule deer, bobcat, cougar, and bear and is one of the heaviest used areas in the state during the fall big game hunting seasons. ***The finding rates recreation as an outstandingly remarkable value.***

WILDLIFE

Determination of Outstandingly Remarkable Values: *Populations:* Many species of wildlife common to the region inhabit the area, including Rocky Mountain elk, mule deer, bobcat, cougar, and black bear. Due to the relative inaccessibility and the dense vegetation, the uppermost reaches of the river corridor provides for bull elk escapement during hunting seasons. The elk herd in the Starkey Management Unit was historically considered to be one of the most productive herds in the area. However, calf recruitment is at alarmingly low levels following a slight but steady decline for nearly 30 years.

Documented in the corridor up to Clear Creek are historic nest and winter roost sites for the threatened bald eagle. This area is listed in the bald eagle recovery plan as suitable habitat for bald eagles. An active osprey nest site is immediately adjacent to, but outside, the river corridor. It is significant because of it's uniqueness to the area. Besides legal requirements for management and protection, presence of these species increases the diversity of animal communities both locally and district-wide. Mountain lions, once rare in this are, are thought to have nearly territorialized the entire Starkey Wildlife Management Unit.

Habitat: Habitat quality for elk is high throughout the corridor. Slopes in the lower corridor area are key big game winter range. Numerous spruce bogs and wet meadows interspersed with large contiguous blocks of cover providing premiere big game summer range in the upper reaches of the river corridor. Because the area's vegetation is thick and it is difficult for hunters to maneuver, the upper drainage provides for good security habitat during hunting seasons.

Several habitat types are known to support communities of greater than average diversity. In general, both the early (grass/forb) and late (mature and old-growth). seral stages support many species not found in other successional stages. In addition, the juxtaposition of the early and late stages creates edges of great contrast, variability and diversity.

The presence of special or unique habitats also adds diversity by providing structural or physical qualities not found in the general landscape. Some of these special habitats found in the river corridor are wetlands, wet or moist meadows, spruce bogs, rock outcroppings and talus and riparian areas.

The riparian areas of the river corridor contribute greatly to community diversity in several ways. Riparian areas in general support a greater diversity than all other habitats. The juxtaposition with late seral stages and other types of wetlands contribute to the overall diversity of this area. Riparian areas are corridors, providing contiguity and connectivity between habitat types; and also travel ways for larger, more mobile species. Habitat for threatened Canada lynx (Lynx Canadensis) exists in this area. Lynx have not been documented to inhabit this area.

Finding: The presence of suitable habitat for American Bald Eagles and their utilization of the river corridor; high quality wildlife habitat; the number of kinds of habitat; the presence of unique habitat; the juxtapositions of habitats; the contiguous nature of riparian corridors; all contribute to an ecosystem component not commonly encountered on the La Grande Ranger District. This is sufficient to ***qualify wildlife values within the Grande Ronde River corridor as outstandingly remarkable.***

FISHERIES

Determination of Outstandingly Remarkable Values: *Populations:* The Upper Grande Ronde River supports indigenous populations of spring/summer Chinook salmon, summer steelhead, bull trout, native rainbow/red-band trout, and introduced brook and rainbow trout. Mountain whitefish, sculpin and duce are also present in the system and its tributaries.

Anadromous fish are present in the majority of the Upper Grande Ronde River drainage. From the National Forest boundary, near the mouth of Fly Creek, to Sheep Creek, the river serves primarily as a travel corridor for anadromous fish working their way upstream to spawn. Spawning occurs primarily from Sheep Creek upstream to approximately Tanner Gulch. Spring/summer Chinook salmon *(Oncorynchus tshawytscha),* summer steelhead *(Oncorynchus mykiss),* and bull trout *(Salvelinus conjluentus)* are listed as threatened under ESA.

Grande Ronde Lake, in the headwaters of the Grande Ronde River, is stocked with brook trout which find their way into the Grande Ronde drainage. The brook trout out-compete bull trout due to a more aggressive defense of spawning territory, and hybridize with bull trout.

Habitat: Habitat quality varies throughout the system. Water quality is fair in the lower reach from the Forest Service boundary near the mouth of Fly Creek to the downstream boundary of the Vey Meadows private parcel. Stream temperatures are approximately 10 degrees higher in this portion of river than are found in the upper reaches above Vey Meadows. The river flows through a constrained reach and is further constrained by Forest Road 51 adjacent to the river. Past timber harvest activities and the abundance of roads have added sediment to the river and reduced stream shading. A splash dam located just below Vey Meadows influenced the stream channel completely around the turn of the twentieth century.

A portion of the critical spawning habitat for spring/summer Chinook salmon is located in the Vey Meadows area, a parcel in private ownership. In this stretch the habitat condition is very poor. Stream temperatures rise 10 degrees passing through the meadow. The potential habitat is excellent and could provide essential spawning habitat for spring/summer Chinook and summer steelhead with rehabilitation efforts.

From the upper edge of Vey Meadows to Tanner Gulch habitat is generally good despite high road densities, historical and on-going mining, recreation, and management activities. The spawning habitat in this reach is significant for both spring/summer Chinook salmon and summer steelhead. This reach is especially significant for spring/summer Chinook salmon as the majority of spawning occurs here.

A cooperative stream rehabilitation project involving the Bonneville Power Administration/Forest Service has been completed in this reach of the Grande Ronde River. The first two phases included improvements from Limber Jim Creek upstream to Clear Creek and consisted of installing log sills and downstream V's with structures located approximately every 200 feet. The third phase of the project extends from Clear Creek to approximately one mile upstream and consists of installing whole trees and upstream V's to enhance pool habitat.

From Tanner Gulch to the headwaters the river corridor has had little impact from human activity. Forest Road 5138 running adjacent to this portion of the Upper Grande Ronde was obliterated in 1993. This leaves the river corridor road-free from approximately .4 mile upstream of the Tanner Gulch confluence to the headwaters.

In 1989, floods occurring after the Tanner Fire had a severe impact on the system, delivering sediment into the river and probably killing all adult and most juvenile fish in the Upper Grande Ronde River. This will continue to impact the river and fish populations until the sediment has been transported out of the system to downstream reaches.

> **Finding:** The presence of spring/summer Chinook salmon, summer stee1head, and bull trout within the Upper Grande Ronde river system, and the occurrence of critical spawning habitat for these species in this reach, ***merit the finding of outstandingly remarkable for the fisheries resource.***

HERITAGE (Historic)

Determination of Outstandingly Remarkable Values: Gold mining is a long and well-established activity in the Blue Mountains, and continues today. It was the primary activity which first brought substantial numbers of people to the mountains in the l860s, and evidence of this "gold rush" still exists along the river.

The Upper Grande Ronde area is historically significant for having the first placer mining

operation in the area. The upper reaches are encompassed by the Camp Carson Historic Mining District, considered eligible for the National Register of Historic Places. This area is unique to Northeastern Oregon *as* the first placer mining site in the area, and *as* one of the largest sites in the state. Placer mining started in 1864 and all along the corridor are remnants of mining activity.

Mining activity in the corridor *was* intensive. In fact, whole hillsides were blown away by placer mining. Ditches for the placer operations were built to collect and transfer water, and extensive ditch building *was* in progress *as* early *as* 1867. Dredges were brought into the area around 1940, and from Woodley Campground to Tanner Gulch the granitic tailings from dredging operations are prominent.

In the corridor, at the northern edge of Vey Meadows are remains of a splash dam structure associated with historic logging of the area. The structure still exists but the gates are removed and the dam no longer obstructs the flow of the river.

The Elkhorn Range *was* utilized in historic times by members of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) for fishing, hunting, and religious purposes. The drainage is included within CTUIR's ceded boundaries.

> **Finding:** The Grande Ronde River has long been a focus of human interest. There are several features of interest in the corridor. The splash dam in Vey Meadows is a relatively unique feature for Northeast Oregon. The Camp Carson historic mining district is a unique area, and potentially
> eligible for the National Register of Historic Places. Interpretive opportunities are excellent.
> ***Heritage (Historic) values are found to qualify as outstandingly remarkable in the Upper***
> ***Grande Ronde River corridor.***

HERITAGE (Prehistoric)

Determination of Outstandingly Remarkable Values:
The Upper Grande Ronde River had been used by the southern Plateau Indians. In particular, the Confederated Tribes of the Umatilla Indians (CTUIR) utilized this area heavily during prehistoric times for hunting, fishing, camping, root digging, and berry picking. To date, surveys on National Forest lands in the river corridor have not identified any significant prehistoric sites.

> **Finding:** The absence of known, rare, or one-of-kind sites within area ***precludes a finding of outstandingly remarkable for prehistoric cultural values.*** There is some evidence that the Upper Grande Ronde River area was used by prehistoric American Indians. Known and discovered sites will continue to be protected under existing statutes, regulations, and policy

GEOLOGY

Determination of Outstandingly Remarkable Values: The Upper Grande Ronde River drainage lies entirely within the Blue Mountains physiographic province which spans a large part of the geologic time scale from the Permian period to the Pleistocene. The Elkhorn Mountains are composed of rock of sedimentary origin.

A wide variety of rocks can be seen in the river corridor. The oldest rocks are a series of metamorphosed sedimentary and volcanic rocks made up of schists, quartzite, and greenstones that crop out. During Cretaceous times, these rocks were in part intruded by igneous masses having the general composition of diorite. Granitic rock, part of the Bald Mountain batholith, is exposed at points along the main stem of the Grande Ronde River near the confluence of Sheep Creek These rocks were in turn overlain by tuff breccia and andesitic lava flows of probably the Miocene, and covered in the late Miocene by flow-up on-flow of Columbia River basalt and associated volcanic rocks, principally andesite. The layered Columbia River Basalt formed the mass of the surrounding uplands and plateaus. Outcrops of volcanic rocks occur at several scattered points on the Grande Ronde River above the confluence of the mouth of Fly Creek Many of these rock units have been metamorphosed, faulted, and folded. Further downstream, the river has cut through layers of older and younger basalt and volcanic rocks to form cliffs and canyons.

> **Finding:** In general, geology of the Upper Grande Ronde is typical of the region, and ***does not merit a finding of outstandingly remarkable.*** There are significant rock outcrop features within and immediately adjacent to the corridor (Woodley Rocks), which merit special consideration in planning future management activities in the area. The history associated with the mining activity in this river corridor is also very significant, but is more appropriately dealt with under the Historic section of this document.

BOTANICAL\ECOLOGICAL

Determination of Outstandingly Remarkable Values: The Upper Grande Ronde River corridor contains two species of plants that are on the Northwest Region sensitive plant list. They are not unusual in this mountain range or others in northeastern Oregon and will receive protection to assure that management activities do not jeopardize the continued existence of sensitive species or result in adverse modification of their essential habitat under the standards and guidelines of the Forest plan. The plants, meadows, riparian areas, and plant associations are common in northeast Oregon. It is unlikely that suitable habitat exists for threatened, endangered species, and their existence has not been confirmed.

Plants which are on the Northwest Region Sensitive Plant List that occur in the upper reaches of the Upper Grande Ronde River include *Botrychium minganense and B. pinnatum.* These species occur in other similar areas on the forest.

> **Finding:** The upper reaches of the Upper Grande Ronde River ***do not contain any ecological/botanical outstandingly remarkable values.***

TRADITIONAL USES\CULTURAL VALUES

Determination of Outstandingly Remarkable Values: The Grande Ronde River drainage is included within the ceded boundaries of the CTUIR. The area was used heavily in both prehistoric and historic times for fishing, hunting, roots, and berry harvest. Tribal members still travel to the area to fish, hunt, gather, and camp, continuing the traditions taught to them by their elders.

> **Finding:** To date, surveys on National Forest lands in the river corridor have not identified any significant prehistoric sites. While the river corridor has no regionally unique locations of importance reported by members of CTUIR, it is recognized that all

significant drainages in northeastern Oregon have special cultural value to the American Indians indigenous to the area. In particular, the anadromous fish runs in the Grande Ronde basin are extremely important to CTUIR and the member tribes of the Columbia River Inter-Tribal Fish Commission. Traditional use and cultural values are found to be important in the Upper Grande Ronde River; however, these values were ***not found to be outstandingly remarkable*** as they are fairly typical of the rivers in the region.

CLASSIFICATION

Eligibility Determination: The Upper Grande Ronde River meets the minimum eligibility requirements as specified by the Wild and Scenic rivers Act. It is found to be free-flowing and current information supports the findings that four outstandingly remarkable values are present. These outstandingly remarkable values are: Recreational, Fisheries, Wildlife, and Heritage (Historic) resources.

Water Resources Development
There are no impoundments in the study segment of the Upper Grande Ronde River. However, Tony Vey Meadows was the sight of a splash dam, which consisted of a rock structure across the river, used in historic times when the area was logged. Minimal evidence of this structure still exists. Some small ditches which remove water from the river for mining activities continue to be used today.

The entire study segment of the Upper Grande Ronde River qualifies for a classification of Wild, Scenic, or Recreational.

Shoreline Development
The Upper Grande Ronde River, from the headwaters to just above its confluence with Tanner Gulch, is dominated by stands of small diameter lodgepole pine. In the mid-to-Iate 1970s, larger lodgepole pine was killed in a mountain pine beetle epidemic, and much of it has blown down. Some large-size Douglas-fir, western larch, and Engelmann spruce exists immediately adjacent to the river. Bogs, shallow lakes, and wet meadows are in the upper reaches of this pristine segment. There is minimal evidence of past timber harvest and no on-going timber harvest. No livestock grazing occurs here. Evidence of human activity is limited to several old mining cabins about a mile north of the Aurelia Mine, the remnants of a cabin (now collapsed) at the Aurelia Mine, and remnants of several mining roads (now obliterated).

From just above the confluence of Tanner Gulch down to the National Forest boundary, a substantial amount of human activity and use is evident. This includes structures, recreational sites, mining activities, livestock grazing, a water monitoring station, a Forest Service Guard Station, six river bridges, and past and present timber harvest.

The Upper Grande Ronde River, from .4 mile above the confluence with Tanner Gulch to the headwaters, is a pristine segment with little evidence of human activity; this warrants a classification of Wild. Below Tanner Gulch, there are numerous examples, encompassing a wide range, of human activity along the river. This section warrants a classification of Recreational

Accessibility
From the headwaters to just above the confluence of Tanner Gulch, there are no developed trails in this area. There was a stretch (approximately 2 miles) of a primitive dirt road adjacent to the river from .4 miles above the Tanner Gulch confluence upstream, but the road was

closed to vehicle traffic and obliterated and reseeded in 1993. There is also an old non-system trail that accesses the Aurelia Mine from the Elkhorn Crest on the Anthony Lakes Highway (Forest Road #73). A few hikers and hunters have been using portions of this trail to access the upper portion of the area.

A Forest Service Road parallels the entire segment from just above Tanner Gulch downstream to the National Forest boundary. The lower 9 miles on FR #51 are paved, the middle 7 miles on FR #5125 is gravel, and the last mile on FR #5138 is dirt. The road prism confines the river in two places, and a few spots have riprap along the bank.

The lack of developed trails and constructed roads in the headwaters area .4 miles above Tanner Gulch qualifies this segment for a Wild classification. Downstream of there to the National Forest boundary, a Forest Service Road parallels the entire segment, thus qualifying it for a Recreational classification.

Water Quality
The water quality .4 miles above Tanner Gulch meets or exceeds State Water Quality Standards. Downstream, the natural conditions of low elevations, low flows, and warm summer air temperatures combined with a variety and level of human activities and developments (roads, timber harvest, mining, grazing, etc.) has cumulatively impacted the water quality, resulting in warm stream temperatures.

While the headwaters area qualifies under the Wild classification for water quality, the portion .4 miles above Tanner Gulch downstream to the National Forest boundary would only qualify for a Scenic or Recreational classification due to warm stream temperature exceeding state water quality standards.

CLASSIFICATION DETERMINATION
As stated earlier, the overriding determinant for classification is the degree of naturalness, or inversely, the degree of evidence of human activity in the river area. The headwaters of the Upper Grande Ronde River have pristine wet meadows and untouched tracts of timber and clearly fall into the Wild classification. From.4 miles south of Tanner Gulch downstream to the National Forest boundary, evidence of human development and activity becomes predominant, when timber harvests, roads, mining, recreational development, and grazing are seen. This segment qualifies for a Recreational classification.

Classification: 11.7 miles “Wild” 18.1 miles “Recreational”

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