Introduction

Purpose and Organization of This Document

This document is a comprehensive assessment of the Upper Joseph Creek Watershed (UJCW)[1], prepared through a collaborative process by the Upper Joseph Creek Community Planning Group. The document begins with introductory and background information about the watershed and the process used to complete the assessment. The next section integrates individual assessments to summarize current watershed conditions and desired future conditions as well as recommendations for activities that promote the desired conditions. Following this section are individual assessments for Forest Condition, Fire and Fuels, Rangeland Condition, Riparian Condition and Roads and Recreation, Wildlife, and Culture.

Environmental Setting[2]

The UJCW is a relatively large watershed (174,674 acres) with slightly more private ownership than public ownership (44% federal and 56% private). The Wallowa-Whitman National Forest manages virtually all of the public land. The private land is primarily grassland and includes all of the southern headwaters of this watershed. Private ownership is divided among 55 landowners with almost two-thirds of the private land held by 10 landowners. The watershed is bounded on the east and north by the Hells Canyon National Recreation Area. The Hells Canyon Wilderness is approximately 2 miles from the watershed boundary.

The National Forest portion of this watershed has been managed more intensively than most other watersheds within the northern portion of the Wallowa-Whitman National Forest. Almost all portions of the watershed are accessible by vehicle due to gentle terrain and regularly spaced roads. Stands of conifers have been managed over the last 50 to 60 years, and range vegetation has long supported cattle and sheep grazing. Since less than 5 percent of the private land is forested, timber harvest is a minor component of management activities on private land.

Contrary to its name, the UJCW does not actually contain Joseph Creek. Rather it contains all of the drainages that contribute to Joseph Creek where it begins at the mouth of Chesnimnus Creek. The watershed contains 13 subwatersheds. Components of the UJCW are described in greater detail below.

Subwatershed Descriptions

The UJCW consists of thirteen National Forest System subwatersheds, ranging in size from 6,000 to 19,000 acres.

[1] An Acronym Key is provided for this document in Appendix 1
[2] From Upper Joseph Creek Watershed Analysis Report, USDA FS (1995)

Lower Crow subwatershed is the smallest of the thirteen subwatersheds, containing less than 6,300 acres. County Road 765 and Forest Road 4620 run along the portion of Crow Creek within this subwatershed. The area provides a transition between grasslands to the south and more heavily forested areas to the north, Johnson Canyon and Doe Gulch are tributaries to Crow Creek within this subwatershed.

Elk Creek subwatershed ranges from an elevation of 5122 at Elk Mountain to 3260 at the mouth of Elk Creek. Forest Road 46 runs along portions of Elk Creek. Most of Elk Creek has received restoration treatments such as exclosure fencing, in-stream woody debris placement, and streamside planting. In addition to Elk Creek, this subwatershed contains Little Elk Creek and Gould Gulch. Similar to the Lower Crow subwatershed, this subwatershed provides a transition between grasslands to the south and more heavily forested areas to the north.

Middle Crow subwatershed is entirely within private ownership, except for a small parcel managed by the Bureau of Land Management. County Road 765 runs along the portion of Crow Creek within this subwatershed. Virtually this entire subwatershed is grassland.

Upper Crow subwatershed also contains a small parcel managed by the Bureau of Land Management, but otherwise is privately owned. The subwatershed is entirely rangeland and agricultural land. A former volcanic vent is located in the northeast corner of the subwatershed.

Lower Chesnimnus subwatershed contains a portion of Chesnimnus Creek in addition to tributaries such as Calf Creek, Butte Creek, Corral Creek, and Gooseberry Creek. Portions of the floodplain of Chesnimnus Creek have been cultivated and grazed. The southern and central portion is grassland and becomes more forested toward the north.

Pine Creek subwatershed is privately owned except for a small Bureau of Land Management parcel. The subwatershed is entirely non-forested. It contains Pine Creek and its various unnamed tributaries.

Alder Creek subwatershed is primarily privately owned with a portion of National Forest in the northeast corner. In addition to Alder Creek, the subwatershed contains Sterling Gulch. Forest Road 4600-990 runs along the main stem of Alder Creek. Almost 5,000 acres of grasslands and open timberland (most of it privately owned) burned in 1994 during the Thomason Complex fires.

Salmon Creek subwatershed includes Salmon Creek, Dry Fork Salmon Creek, and Deadman Gulch. The subwatershed is non-forested and except for a small Bureau of Land Management parcel is privately owned.

Middle Chesnimnus subwatershed is mostly forested and except for a few privately owned parcels, is managed by the Forest Service. The subwatershed contains a portion of Chesnimnus Creek, Romane Gulch, Doe Creek, Hilton Gulch, and Ellis Canyon. Portions of the 1994 Thomason Complex of wildfires is within this subwatershed. Vigne Campground is located along the portion of Chesnimnus Creek in this subwatershed.

Upper Chesnimnus subwatershed is the largest of the thirteen subwatersheds containing almost 19,000 acres. The southern portion is privately owned and the National Forest is to the north. The Thomason Meadows Guard Station is in the center of the subwatershed. Besides the headwaters of Chesnimnus Creek, the subwatershed contains drainages such as Tamarack Gulch, Dry Fork Creek, and Vance Gulch. The Vance Knoll Research Natural Area is located in this subwatershed. The subwatershed is a transition zone for grasslands to the south and forested land to the north.

Devils Run subwatershed is mostly forested and except for a five-acre parcel, is managed by the Forest Service. Drainages within this subwatershed include Summit Creek, Poison Creek, and Devils Run Creek. This subwatershed contains a particularly high density of roads, although many of the roads have been closed to vehicles over the last five years.

Billy Creek subwatershed is a relatively small subwatershed (6,500 acres) that is entirely within National Forest jurisdiction. It contains the Billy Meadows Guard Station. Billy Meadows is known for the elk fence installed early in the century to protect the first reintroduced Rocky Mountain Elk herd. Daugherty Campground along Road 46 is in this subwatershed. The subwatershed contains Billy Creek and its forks. Most of the subwatershed is forested, and forested portions are some of the densest in the watershed.

Peavine subwatershed contains private land in the south and National Forest System Lands in the central and northern portions. Roads line the East Fork, West Fork, and Main Stem Peavine Creek. Coyote Campground and Red Hill Lookout are located in this subwatershed. The road along main stem Peavine Creek is currently closed to standard width vehicles. The subwatershed is primarily forested.

Geology and Landforms

The UJCW is a gently sloping dissected plateau. The Columbia River Basalt that forms this plateau is generally thick bedded, fine-grained, hard and massive. Locally, the plateau contains some interbeds of ash, old soil profiles, and sedimentary rocks; it makes up about 95 percent of the watershed. The basalt plateau slopes from the highest points on the rim on its northeast side into a "bottleneck, on the northwest where Elk, Crow, and Chesnimnus Creek meet to form Joseph Creek. Here, Joseph Creek empties into its deeply incised canyon. The watershed is bounded by the break-lands of the Snake River on the northeast and those of Joseph Creek Canyon on the northwest. The northern half of the watershed is a mix of forest and grassland and is dissected by Chesnimnus, Crow, Elk, Peavine, and Devils Run Creeks. These are fairly incised drainages; their flow is generally to the west. The southern half of the watershed (mostly private land) is flatter and is drained by Crow and Alder Creeks, flowing to the north and west.

Broad alluvial deposits are present along Chesnimnus Creek and at the confluence of Elk, Crow and Chesnimnus Creeks into Joseph Canyon. These valley floors make up less than 1 percent of the watershed.

Volcanic vents, which were intruded through the plateau basalt, now exist as buttes. They make up about 4 percent of the watershed, including Elk Mountain, Roberts Butte, Greenwood and

Haskin Buttes, and the Findley Buttes. North and northwest trending faults border the watershed.

Soils

Soils in UJCW are related to landform, vegetation, and temperature moisture group. Higher elevations along the northeast rim as well as north facing slopes are some of the cooler sites.

North Half - Dominant soil series in the rolling mountain slopes include Fivebit, Deadend, and Kamela. Fivebit is a shallow gravelly silty lam on forested plateaus and back slopes. It is present in warm/dry areas and is forested by ponderosa pine or Douglas fir. The Deadend series is a very shallow loamy skeletal soil, present on mountainside slopes in opening with a sage bluegrass plan association. It is a warm/dry temperature moisture regime. The Kamela series is present under a more closed canopy of Douglas fir on mountain toes slopes on cool/dry sites. It is a moderately deep gravelly loam and is a mixture of ash, loess, and colluvium from basalt. These soils are present in the Peavine, Billy, and Devils Run subwatersheds.

Dominant soil series on the northern plateau include Syrupcreek and Downey Gulch. Syrupcreek soils are moderately deep, cool, loamy-skeletal, and occur on forested sites. Downey Gulch soils are moderately deep and loamy with less ash and also occur on forested sites. Openings may be moist meadows with dark, loamy soils such as Albee or Parsnip. Swales may have soils high in clay such as Zumwalt or Harlow.

Steep canyon walls occur along incised drainages. Upper slopes of these canyon walls are erosional (soil detachment and transport) and transition to depositional on toe slope positions. On north facing slopes, Limberjim soils are associated with grand fir forests. Limberjim soils are very deep and ashy. Tamarack soils are also found on north slopes with grand fir and are very deep. Klicker soils, which are moderately deep and loamy-skeletal, occur on drier forested sites and are associated with ponderosa pine and Douglas fir. Anatone, a shallow, loamy-skeletal soil, and the very shallow, skeletal Bocker soil, occur on south aspects.

South Half - Snell and Harlow soils occur on north and south side slopes of the southern plateau. They are shallow to moderately deep, skeletal loams over clays. Plateau tops are dominated by mound-intermound microrelief. The very shallow Bocker soil occurs in intermound positions. Anatone soils are shallow, loamy-skeletal soils found in mounds. Wallowa soils are moderately deep silt loams with thick dark surfaces. They are found in grasslands on the plateau. Albee soils are similar but are found in areas of higher precipitation. Harlow soils are shallow, clayey-skeletal, and found on ridge tops. Zumwalt soils are moderately deep, fine textured soils found in swales. Hurwal soils are deep and are the most productive agricultural soils within the UJCW. They are usually found in association with Topper and Tippet soils, which occur, adjacent to and in swales.

The stream break lands and north slopes off the plateau are almost always influenced by volcanic ash. The soils are mapped as Getaway-Tolo complex. Getaway is a deep non-ash soil, while Tolo is a very deep ash soil. This complex supports productive stands of ponderosa pine and Douglas fir. Klicker soils are found on south slopes and support ponderosa pine and Douglas fir.

Existing Condition of Wallowa County

This section not only describes the general physical characteristics of forestlands and rangelands, but also the socio-economic conditions that exist within the county. The UJCW is one of 20 watersheds that fall within or partially within Wallowa County; however, countywide conditions are well represented within the UJCW. Figure I-1 shows the location of the UJCW within Wallowa County.

Figure I-1. Upper Joseph Creek Watershed vicinity within Wallowa County.

Physical Conditions

The poor ecological health of the forested ecosystem in Wallowa County and the greater Blue Mountains area is well documented in federal and scientific reports. Forest ecosystems are considered "unhealthy" because of widespread conifer die-off due to insect and disease epidemics, as well as periods of low precipitation. Assessments of the area typically highlight "natural process imbalances" attributed to the history of fire exclusion, extensive livestock grazing and past timber management techniques. This history has driven a colonization of the forested lands by more shade tolerant Douglas-fir and true firs, and a build-up of fuels to a level much greater than that historically found in this area. These conditions have lead to increases in the size and occurrence of disturbance events, as currently seen throughout the inland west. There is broad agreement that a course of non-intervention would result in unacceptable consequences to the forest ecosystem.

Rangeland areas are in better condition at the start of the 21st century than at any time during the previous century. However, the spread of noxious weeds and alien invasive species continues to threaten native grasslands, and the management of isolated riparian areas requires attention.

Riparian areas are a concern due to the decline in anadromous salmonid populations, and attention is being given to forestry, farming and livestock practices that affect riparian

vegetation, stream sedimentation, and water temperature. However, several factors outside of Wallowa County affect these fish populations, including ocean fishery harvest and hydropower dams. While improvements in riparian management are being pursued in Wallowa County, it is unlikely that these improvements alone will result in the desired increase in threatened salmonid populations.

Because of the varied natural environment of Wallowa County (from alpine mountains to North America's deepest canyon), a great diversity of wildlife species exists in Wallowa County. While settlement and excessive hunting did result in decreased numbers of most of the larger mammals by the early 1900's, subsequent regulation and management have resulted in a significant increase in populations of all the larger mammals but the bighorn sheep. The importance of many other species is now being addressed in management plans due to their status as threatened or endangered, and because of increased interest in maintaining resource diversity.

Socio-economic Condition

In a recent statewide assessment (2003), the Oregon Progress Board ranked Wallowa County's economy as 30th out of 36 counties in the state. Since 1995, the number of residents with incomes below the federal poverty level increased due to the loss of manufacturing jobs and their partial replacement with service jobs. Persistent poverty continues to be a problem for many residents. Per-capita incomes are among the lowest in Oregon, as is the net job growth per 1,000 population.

The per-capita income conditions are actually worse than the weak figures indicate, as Wallowa County's income figures have among the highest contribution from dividends, interest and rent of any in the State. This is believed to reflect the increasing retiree and second homeowner segment of the population. The economic data supporting this assessment highlights the significant loss of jobs from the wood products manufacturing sector over the past 10 years, a sector with above average wages in the County, as a key contributor to the depressed economic conditions.

State of Oregon, Employment Department figures from January 2004 indicate that Wallowa County was among the lower counties in the state for average pay per job in 2002. The average annual pay in Wallowa County of $25,669 is only 76 percent of the state average and 70 percent of the national average. The unemployment rate for November 2003 in Wallowa County was 8.5 percent as compared to a statewide rate of 7.3 percent. In January 2004, Oregon moved from the 50th to the 49th highest unemployment rate in the nation.

In 1992, a reduction in timber harvest from public lands, along with a downturn in the market price for lumber, contributed to a severe shock in Wallowa County's economy. The three remaining mills closed by 1995 – including the large Boise Cascade mill in Joseph, which had the highest lumber industry wage jobs. While one mill remains in the county, supply to this mill remains tenuous.

Recognizing the importance of the forest products sector of the economy, the impact of the job loss comes as no surprise. A broad range of federal and state public assistance claims have

skyrocketed since 1991 including food stamps, employment related day-care, temporary assistance to needy families, and aid to dependent children. Staff at the Enterprise Employment Department also indicated that the loss of forest industry jobs contributed to a breakdown in families. Data shows a significant increase in public assistance to single parent families. The three Wallowa County School Districts have also been hit hard with a cumulative decrease in enrollment. This decline in enrollment severely affects state financial allocations to rural schools already strapped for funds.

The shifting demographics and employment trends in the County are fueling increased real estate sales and home construction. With the passage of Measure 37[3] in Oregon, the restrictions on sub-division of agricultural and forestry properties under state and county land-use laws are being challenged. Several Measure 37 claims have been filed in Wallowa County.

Community Collaboration

On several occasions between October and December, 2000, County Commissioners, the Forest Service, Wallowa Resources, several State agencies, tribal representatives, environmental group members and representatives on the local Natural Resource Advisory Council (NRAC) discussed ways we could "fit together" and enhance our collective influence over local Natural Resource issues. All parties noted the good communication; coordination or collaboration once private landowners or stewardship agencies initiate management projects. However, all were concerned that we lack a ***shared vision of land stewardship or restoration priorities*** across the landscape. There was also a sense of urgency based on various needs for forest-rangeland restoration or health and the employment opportunities that such projects could generate in a county with one of the highest unemployment rates in Oregon.

We decided that a collaborative and interdisciplinary approach to establishing restoration project priorities and developing initial project proposals would enhance the present level of collaboration between citizens, local government, tribes, state and federal agencies. Calling the effort the Community Planning Process, we want to generate agreement around the most important places to initiate further restoration and land stewardship in Wallowa County. In addition, we are exploring efficiencies in the NEPA, federal planning process, as well as implementation and monitoring that involves citizens in the management of their public lands by using a variety of contracting methods and agreements.

Although the initial idea was to identify priorities across the County, ultimately the community decided to focus on the Upper Joseph Watershed (5^{th} order). This watershed was chosen because it ranks high in the Wallowa-Whitman Watershed Restoration ranking process and because there was a high degree of community interest and readiness to do work in this particular part of the landscape, including the private landowners who own most of the southern headwaters.

[3] The constitutionality of this measure is being tested in the courts.

The Planning Group

The Upper Joseph Creek Community Planning Group is a collection of individuals who represent local government, tribal, public agencies, and private organizations. This group was formed by the Wallowa County Natural Resources Advisory Committee based on its common interest in developing a shared vision of land stewardship and restoration priorities across the landscape. The UJCW was the group's first attempt at applying this collaborative process, and they are currently initiating the process on a neighboring watershed. During the Upper Joseph Creek Watershed process, the group initiated four working groups[4] around four pressing natural resource issues (1) forest vegetation conditions, (2) rangeland vegetation conditions, (3) riparian conditions, and (4) roads and recreation access. Each of the sub-committees gathered field information to assess the current situation, reviewed the resulting information, and generated project proposal priorities. Each of these sub-committees is formed from a diverse group of citizens and agency representatives under the invitation of Wallowa County. These sub-committees reported their findings to the Wallowa County Natural Resource Advisory Committee, a diverse group, appointed by the Wallowa County Commissioners, representing various stakeholders.

The sub-committees soon recognized the need for further information about wildlife habitat related to the desire to manage for the full range of species within the watershed. The subcommittees jointly conferred with a variety of wildlife specialists and wildlife-based interest groups, including the Nez Perce Tribe. Along with subcommittee representatives, this conference included representatives of the US Fish and Wildlife Service, National Oceanic and Atmospheric Administration – Fisheries, Oregon Department of Fish and Wildlife, and US Forest Service; representatives from Wallowa Resources, Wallowa County Soil and Water Conservation District, Hells Canyon Preservation Council, The Nature Conservancy, and Defenders of Wildlife; and a representative from the Nez Perce Tribe.

Organization

The four working groups initiated fieldwork to assess the current situation, reviewed the resulting information, and generated project proposal priorities for consideration across all ownerships.

The working groups were formed from a diverse group of citizens and agency representatives under the invitation of Wallowa County. These sub-committees reported out to the County's Natural Resource Advisory Committee a diverse group representing various stakeholders. The smaller groups sub-committees more efficiently gathered and analyzed information while making recommendations to the larger and more diverse representation of stakeholders.

Data Gathering and Use

Recommendations in this assessment are based on existing records and on data gathered specifically for this effort. At the beginning of the assessment process, each of the four sub-

[4] *Appendix 2: Participants* contains a full list of participants in each working group.

committees determined what level of additional information was necessary, both from the public land and private land portion of the watershed.

The *forest vegetation subcommittee* built a methodology for assessing forest conditions based on the existing Forest Service vegetation database. Collaborators included the Forest Service, Wallowa Resources, The Nature Conservancy, Joseph Timber Company, Wallowa Forest Products, RY Timber, Oregon Dept of Forestry, Hells Canyon Preservation Council, and a few private landowners. The methodology focused on gathering information regarding stand structure, function, composition, and disturbance agents. Camp II Forest Management was contracted to conduct the forest assessment on the 76,159 acres of public land in the watershed from September to December 2001. Data maintained by Oregon Department of Forestry was used for private forestlands. This data had been obtained by classifying pixels from a 1997 satellite image to existing vegetative cover on a five-acre or greater basis.

The *rangeland vegetation subcommittee* initiated inventories in the summer of 2002, to create a baseline inventory of important biological components, including plant species, plant associations, terrain, and soil types. Plant community vegetation was sampled on grass and forest steppe rangeland within and adjoining the UJCW. Collaborators included The Nature Conservancy, the Forest Service, Wallowa Resources, the Nez Perce Tribe, Oregon State University Extension Service, and private landowners with land in the UJCW. Dennis Sheehy and Mike Hale of the International Center for the Advancement of Pastoral Systems (ICAPS) were contracted to conduct field studies followed by a written report. Information collected during field investigation was used to classify vegetation into plant community and seral stage to develop a watershed vegetation map using "Quickbird" imagery. During the second field season, preliminary vegetation mapping units defined by correlating field measurements with remotely sensed "Quickbird" imagery were ground-truthed and validated. A vegetation map defining watershed vegetation by plant communities and seral stage accompanied by descriptive and quantitative information will be developed from this information.

The *riparian subcommittee* compiled existing information and completed additional riparian condition surveys with assistance from the Grande Ronde Model Watershed, the US Forest Service, Wallowa Resources, Oregon Department of Fish and Wildlife, and the Nez Perce Tribe. This information covered both publicly managed and some privately owned stream reaches. Landowner permission had been granted for access to collect information on private stream reaches.

The *road and recreation subcommittee* updated existing road records to represent the current road system on public lands and the County Road system on private lands. Collaborators included: Wallowa Resources, US Forest Service, Nez Perce Tribe, Wallowa Valley Trail Riders Association, Grande Ronde Model Watershed and Oregon State OHV Advisors. They then completed an interdisciplinary roads analysis that identified the costs and benefits of each road, essential roads for various needs and their maintenance needs, and roads that can be closed. Other than county roads, roads on private land were not addressed.

In September 2002, a workshop on wildlife and wildlife habitat of the UJCW was held to review known information about wildlife species and habitat in the UJCW, and identify key wildlife

issues pertinent to this analysis. Participants included US Forest Service, NOAA Fisheries, US Fish and Wildlife Service, Oregon Department of Fish and Wildlife, Wallowa Resources, Wallowa County Soil and Water Conservation District, Hells Canyon Preservation Council, The Nature Conservancy, Nez Perce Tribe, and Defenders of Wildlife. Recommendations resulting from the workshop are incorporated into relevant integrated issues.

Acknowledgements

The Wallowa County Commissioners and the Standing Committee of its Natural Resource Advisory Committee provided critical leadership throughout the course of this assessment. The Commissioners also provided funding to the project that supported specific analytical components and contributed to the participation by the Nez Perce Tribe.

The Wallowa Mountain Office of the Wallowa-Whitman National Forest supported the process, including invaluable contributions of technical data, guidance on NEPA, NFMA and the WWNF Forest Plan, as well as in-kind staff commitments to the various meetings, workshops, field trips and data analysis sessions. The USFS provided the initial funding to get this project started through a grant under the Blue Mountain Demonstration Area.

The Nature Conservancy provided substantial additional funding to this project, which was critical to the Range Assessment component. Additional funding for the full watershed assessment came from the Ford Foundation, Weyerhaeuser Family Foundation, Oregon Community Foundation, and private donations.

The Birkmaier, Buckhorn (Goertzen's), Tippett, B&H (McDaniel's), McClaran, Lewis and Yost ranches and families deserve thanks for agreeing to include their properties in this assessment; allowing our range assessment crews to undertake assessments on their land; and, contributing their time to add to our knowledge and understanding of the area. Oregon State University assisted in the coordination of the range assessment component, and provided research protocols to protect the private landowners involved.

The Oregon Department of Forestry provided summaries of the forest conditions on private lands, and the Oregon Department of Fish and Wildlife provided important information on wildlife populations, critical habitat areas, and wildlife management goals.

All of members to the NRAC, as well as regional partners such as Hells Canyon Preservation Council, Sustainable Northwest, and many local citizens devoted innumerable hours, and demonstrated tremendous commitment and patience with this process. To everyone involved, we are committed to seeing the resulting recommendations implemented.