2005 Watershed Analysis Update of the Catherine/Major Creek Area

The Catherine Creek/Major Creek area was analyzed in the documents collected and summarized in the Catherine-Major Creeks Open Space Plan dated July 1995. The Watershed Analysis document was re-examined in July of 2005 to ensure that that the background and conclusions are still applicable and to include new information. It was noted that a portion of the watershed on Burdoin Mountain (west of Coyote Wall) was not included in some of the 1995 documentation.

The environmental documentation prepared in 2002 for a vegetation management project on Burdoin Mountain was reviewed and compared to the 1995 analysis by the CRGNSA natural resources staff. This analysis found that the same landscape conditions and conclusions are applicable to the western Burdoin Mt. area based on similar vegetation communities, natural resource values, hydrological functions, human elements, fire regimes and historical use patterns.

The Major and Catherine Creeks Watershed Analysis is hereby updated and serves as the Watershed Analysis for the Major, Catherine Creek area including Burdoin Mountain.

/s/ Daniel T. Harkenrider

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Area Manager

1995 and 2005 Update
Watershed Analysis of the Catherine/Major Creek Area

Major and Catherine Creeks Watershed Description

PLANNING AREA

The planning area is the entire Catherine/Major Creek Open Space area, and the
National Forest System lands located south of County Road 1230. Located east of Bingen and west of Lyle, Washington, the 7,000 acre planning area is a mix of federal, state and private land ownership. Approximately one third of the land (2700 acres) is National Forest System lands, one third State of
Washington lands (1900 acres) and one third private lands (2500 acres). In all, there are approximately 30 private and government land owners.

ANALYSIS AREA

The analysis area will consider surrounding lands and land uses, as they affect the lands in the planning area. The watershed has been defined as the analysis area, although linkages beyond this area will be identified for various resources.

Between the White Salmon and Klickitat River valleys and south of Camas prairie is a rugged area of limited population referred to here as the western highlands. Much of the highland's northern half is owned by the state or by private timber companies and is relatively undeveloped. The southern half is somewhat more open and contains numerous small farms and ranches. Timber production and ranching are the principal economic activities of the area.

Population of the western highlands is generally sparse, though less so in the south and west. No incorporated towns exist in the area; however, the communities of Appleton, Snowden, and Timber Valley are general population centers. In recent years, the western highlands has become popular for residential development.

HYDROLOGY-SOILS-TOPOGRAPHY- GEOLOGY

Topography

Major Creek, Catherine Creek, and a host of smaller, unnamed drainages flow primarily from northwest to southeast. Between each of the drainages is an even, sloping ridge with a southeastern aspect. Major creek, the largest drainage, has cut a deep, rugged canyon. Catherine creek is a much smaller drainage. Tracy Hill separates these two drainages. Following the same northwest-southeast trend is a series of sheer cliffs. The largest of these cliffs is Coyote Wall. The second large cliff overlooks the eastern edge of Rowland Lake, called the Rowland Wall.

Construction of the Bonneville Dam created Rowland Lake in the 1930s. As aerial photographs from the 1930s show, Rowland Lake was formerly a marshy flat area in the bottom of a natural amphitheater (i.e. the Rowland Basin). Most of the slopes within the amphitheater are steep and covered with talus or trees, but a few flat, grassy slopes poke up through the trees like islands. To the west of Rowland Lake is the Labyrinth, a maze of basalt rock piles.

Geology

The Columbia Gorge Cascade Range, and interaction of the marks the point where the Columbia River has cut through the even the climate of the project area is influenced by the mountains and the river.

With the transition to the Pleistocene about 2 million years ago, continental ice sheets became the major force shaping the river. One effect of the growth of the glaciers was the damming of tributaries to the Columbia River, creating proglacial lakes. The ice dams sometimes failed, releasing the impounded waters rapidly. The best known floods are those related to the failure of the ice dam across the Clark Fork River in Montana (known as the Missoula or Bret Floods). It is estimated that the Missoula Floods attained a maximum height of about 244 m (800 ft) above the level of the Columbia River in the vicinity of the project area. The floods removed material from some parts of the project area, while depositing it in others. These floods created the Labyrinth, which is a miniature scablands, and they also stripped the soils off the basalts in those areas below about 260 m (850 ft) asl (above sea level).

Climate

The present climate of the Gorge is a combination of maritime and continental influences. It has been summarized by Franklin and Dyrness (1973:310):

Strong winds are a dominant feature. During the winter, low-pressure systems move through the gorge on westerly winds, bringing heavy rains as a consequence of streamline convergence. Strong high-pressure systems east of the Cascade Range can bring gale-force easterly winds through the gorge, resulting in extremely hot, dry weather during the summer and fall and cold continental air during the winter. Marine low-pressure systems and cold air may collide, particularly in the west end of the gorge, with blizzards, ice storms, and freezing rain the result [Franklin and Dyrness 1973:310].

Hydrology

Catherine and Major Creeks drain the area between Laws Corner and Appleton the southwestern highlands. The watershed of Catherine creek is about 4-5 sq. miles; the watershed of Major creek is about 28 sq. miles. The headwaters are covered in mixed conifer/oak forest and hay land. The creeks themselves show relatively straight, high energy, and swiftly dropping channel in the lower region. This configuration is typical of the swiftly descending creeks which drain the south portion of the Western Highlands region of Klickitat County. All of these systems are steeply incised into the basalt layers comprising the Columbia River br_aks, yet show few signs of rapid downcutting in the lower, steep sections. Streamside riparian vegetation is fairly dense and water quality appears high. All of these observations indicate that stream downcutting is occurring at a normal rate, and that this rate is not in excess of the rate riparian vegetation is capable of stabilizing stream banks.

ECOLOGICAL HISTORY

During the 12,000 or so years that people have lived in the Pacific Northwest,
the climate has gone through a series of changes. Little work has been done on reconstructing past climates in the Columbia Gorge itself (Mehringer 1985), but information from west and east of the Cascade Range allows us to piece together a partial picture.

Many of the modern plant communities in western Washington did not come *into* being until about 5000 B.P., when western redcedar began to expand throughout
the Northwest (Hebda and Mathewes 1984). In eastern Washington, the climate prior to 10,000 B.P. was colder and drier than at present, and sagebrush, reflecting a cold steppe, covered a greater range. Since 10,000 B.P., the effective moisture has fluctuated resulting in fluctuations in the distribution of the forested areas. During drier periods, the oaks in the drier areas probably would have been replaced by grasses and forbs, and the zone of mixe6 conifers would have retreated upslope. Sagebrush, at present a relatively minor component of the flora, may have expanded into the areas that are presently grasslands. Intervals of more effective moisture probably reversed these conditions, resulting in the expansion the forested zones.

VEGETATION

Seven main botanical communities have been recorded within the project area. In general, the lower elevations are grasslands and oak woodlands with the forested communities becoming both more 'common and denser as one moves north from the Columbia River onto the western highlands. The higher elevations are more dominated by Douglas fir and grand fir, although oak woodlands continue to finger up in areas of droughty conditions (predominantly rocky and/or west and south facing slopes). The rolling hills of the Snowden Plateau are dominated by Douglas and grand firs with many natural wet meadows and cleared agricultural fields (see attached map).

A brief description of these communities follows:

Riparian areas

The riparian areas along the lower stretches of Major and Catherine Creeks have a good diversity of oaks, ash, alder, willows, and big leaf maple. _though portions have been heavily impacted by human activities, their ecological functions .are intact. The largest impacts are from SR 14, the railroad and heavy grazing in Catherine Creek. At higher reaches of Major creek, the riparian area was roaded and appears to have suffered from logging impacts. The area seems to be recovering

Grasslands and Oak Savannah

These communities are predominantly found below 800 ft. elevation down to the Columbia River. The top soil on exposed slopes are very thin and .poor as a result of the Bretz floods and support grassland communities with scattered oaks and pines. Soils are better in sheltered areas supporting more diverse vegetation, including firs and shrubs. During the winter and early spring, snow-melt and rain run-off create a mosaic of vernal ponds and seeps. These wetlands provide an important habitat for amphibians and flora and are well known for their spectacular early spring wildflower display. By mid may to mid-June the scablands have dried up leaving only dried mosses and grasses.

Fire and, more recently, grazing are the major disturbance forces which have severely impacted these communities. Overgrazing has eliminated several palatable herbaceous flora, such as balsamroot, and most of the native bunchgrass species, allowing the establishment of the annual grasses, such as cheat grass, medusa head, and bulbous bluegrass. These impacts are especially severe in the more assessable areas along the lower portions of Catherine and Major Creeks and in cleared, gently sloping areas above Catherine Creek. Grazing probably was minimal in the steeper portions of Major Creek canyon, where excellent examples of remnant native bunchgrass/herbaceous communities are found.

The Native Americans are known to have set fire to the oak savannah in the Willamette Valley on a yearly basis to increase camas production and for hunting. With large numbers of Native Americans known to inhabit the study area, *it is* postulated that the area was likewise burned every 1 to 5 years. Fire exclusion has caused accumulation of grass thatch which, when fire does occur, burns hotter and smolders killing the crowns of the bunchgrasses.

Pine-oak woodland Communities

The pine/oak woodland communities are found from the low, dry elevations up to the higher elevations where firs have not become established. The major disturbance forces were fire and drought. The grasslands and oak/pine woodlands doubtedly burned equally often; this comprises about 1/3 of the study area burning every 1-10 years. With fire exclusion, the shrubs have increased and firs have encroached upon and are slowly displacing the oak woodlands. Encroachment is most evident in areas of moister soils where firs can grow easily and where fire had precluded firs from becoming established in the past.

The structure of the pine-oak communities are in fairly good condition. Ponderosa pines, a prominent feature of this community, were periodically cut down and, as a result, the pines are probably less dominant and in an earlier seral stage today than in the past. Recent years of drought and insect infestations have killed many of the larger pines. Similarly, the oaks are in an earlier seral stage as a result of land clearing and hot catastrophic fires in the early 1900's which resulted in large numbers of sprouts and a relatively thick stand of younger oak. The understory shrubs, including poison oak, ocean spray, snowberry, and an assortment of herbaceous forbs, are in fair condition. However, years of grazing has eliminated most of the native bunchgrasses and many of the herbaceous flora such as balsamroot and lupines. In several areas these flora are making a slow come back.

The function of these communities has been less affected. The loss of the large oaks and pines and native bunchgrasses has eliminated some important floral and cavity habitats. The effects from fire exclusion are probably not well known but have undoubtedly de-stabilized the ecological equilibrium.

Douglas-fir and grand fir communities:

These communities are found at higher elevations or in areas with more soil moisture, such as north or east-facing slopes. The major natural disturbance forces are drought and fire. In years of severe drought, these fir communities which have expanded onto marginal habitats will often die and be replaced by more drought adapted communities such as the pine/oak woodlands. With fire eliminated as a disturbance, fir communities are expanding into the oak/pine woodland communities. Based on recent fire behavior work on the Mt Hood and Gifford Pinchot National Forests, these fir communities are believed to have burned every 5-45 years in the upper canyons, and every 25-100 years on Snowden Plateau.

The structural condition of these communities in the canyons is skewed towards a mid- to early-seral condition. Past timber operations (about 60 years ago) removed the older components which, perhaps in conjunction with fire, has creating a more-or-less uniform mid-seral structure, except for the late seral communities in the proposed natural area on the east fork of Major Creek.

On Snowden Plateau, other landuse changes such as farming and residential development, have played an important role in changing and shaping the vegetative communities. As more land becomes cleared, the forested habitat becomes more fragmented and several of the wet meadows lost most of their habitat values. This trend is especially true for the head waters

of Catherine Creek and the west fork of Major Creek. The east fork of Major Creek is still largely owned by commercial timber companies and the land base has not seen as much subdivision, development, and clearing; however, the impacts from timber harvest is evident, wide spread, and causing as much habitat fragmentation.

The exclusion of fire has created a more shrubby understory resulting, in higher fuel loads, increasing the likelihood of a catastrophic fire. Down woody debris is notedly absent. Functionally, these communities are lacking some key components such as older trees, large down woody debris, snags, and a more natural fire induced structural habitat. The loss of these key components influences the flora and fauna present and de-stabilizes the communities.

Sensitive Flora

This watershed is known for its large numbers of sensitive flora and fauna. Several flora species, including *Navarretia tagetina*, *Githopsis specularioides, Collinsia sparsiflora, Lomatium suksdorfii*, and local endemics, such as *penstemon barrettiae*, and *Lomatium columbianum*, are known in this area. Three new populations of *Lomatium suksdorfii* were located during the field survey for this open space plan.

If these populations are to be protected and enhanced, it is critical that the habitats under which they evolved be protected. Judging from the ecological information, these species prefer the dry grasslands and oak woodlands in which the two ecological processes most changed are fire disturbance and grazing. Although more information is needed, the conservative approach would be to re-establish these processes as protection and enhancement measures.

Noxious Weeds

The spread of noxious weeds throughout the region is an increasingly serious problem. Knapweeds, yellow star thistle, puncture vine and hound's tongue are reported in this area. Knapweeds are common in all disturbed areas. Yellow star thistle is limited to a small area north and south of road 1230, but infests hundreds of acres to the west and east. All known locations of this weed within the open space area are being hand pulled to prevent further spread. Hound's tongue is found along utility corridors, and along Major Creek. Puncture vine is reported on Burdoin Mountain.

FISHERIES

Very little existing information was located regarding the fisheries in the planning area. Since Catherine Creek goes dry in the summer, fisheries research was concentrated on Major Creek.

Major Creek is divided into three main sections: Major Creek, West Fork Major Creek and East Fork Major Creek. Each section is divided into reaches. The overall fisheries habitat was rated as fair for Major Creek. Anadromous fish habitat exists from the mouth of Major Creek to river mile .32, and this section of stream was rated as the best of any reach within the drainage, as good. Many Coho Salmon (*OncorYnchus kisutch*(Walbaum)) fry and a few Steelhead trout (*OncorYnchus mykiss*) and Shorthead Sculpin(*Cottus confusus* (Baily and Bond) were observed in this section of the stream. The remaining sections of the stream revealed Rainbow trout and Sculpin.

Adequate spawning gravel is absent from all three sections of Major Creek with the exception of the anadromous spawning habitat at the mouth of Major Creek.

Woody debris, which helps to create pool habitat and spawning grounds, was rated as poor. The main channel and the West Fork, which supports a native fish population, are lacking wood and the East Fork, which does not support fish populations, has abundant wood.

The pool to riffle ratio is an indicator of the quality of the fishery habitat in a stream system. The entire system of Major Creek is lacking food pools and the pool to riffle ratio is poor in all but the first reach in each of the sections. The anadromous habitat in the first reach of the main channel has an excellent ratio of 1:1. This indicates a lack of rearing habitat which is important for the adult fish to exist safely between spawning seasons.

The stability of the stream bed was>good for the entire canyon. All three sections of Major Creek have thick canopies along both banks of the stream which hold the bank soil in place. All three sections have a solid substrate with bedrock as the dominant component. The heavy canopy and thick riparian vegetation along with the. solid bank substrate give this system a very stable stream bed throughout the watershed.

The riparian zones along Major Creek are in good condition. The main channel has a high cover of vegetation with a secure

root base with the exception of the first reach, which has high human impact that has damaged the riparian zone in this area.

The biological diversity in this stream system and its canyon is high. The number of animals that share this area is large. Freshwater snails are abundant in Major Creek which indicates that the water quality is good (the snails are usually the first animal to die when pollutants are introduced into the water). The canyon is very steep and well protected from its surrounding area. The protection that this canyon provides and the diversity of the ecosystem allow a wide variety of animals to share this watershed.

WILDLIFE (FAUNA)

The diversity in floral communities, topography, and geomorphology has created a wide selection of habitats for fauna species. The oak/pine/fir communities are excellent habitat for and used by deer, bear, cougar, coyotes, wild turkey, and many song birds. The dry oak and rocky communities offer excellent habitat for reptiles (western fence lizard, western skink, and .rattlesnakes). Many avian species, such as the golden eagle, red-tailed hawk, great-horned owl, meadow lark and other song birds, and many.rodents prefer the more open grassland communities mixed with forested areas. The bald eagles frequent the riparian areas along the Columbia River during the winter months. Catherine and Major Creeks are important nesting and migrate areas for the neo-tropical migrants. The spring vernal ponds offer seasonal habitat for amphibians and other small aquatic organisms. Higher up in elevation, the fir forests and small areas of older growth are good habitat for such species as elk, flying squirrels, tree voles and other forest dependent species.

On a regional perspective, the pine/oak woodland habitat is the more unique of the habitats found in this region. The dry oak habitat is limited to the mid-Columbia with a small extension up to the Yakima Valley and south of The Dalles. The climatological conditions in the mid-Columbia are more similar to that in southern Oregon and California. This habitat is the home for several sensitive species such as the disjunct population of California mountain king snake (not found anywhere locally until southern Oregon and California), the southern alligator lizard, and the Lewis' woodpecker. Mixed with the pine/oak woodlands are other habitats such as the talus slopes which are home for the Larch Mountain salamander. The Washington State listed western grey squirrel prefers the oak/pine/fir ecotone, and the goshawk and pileated woodpecker prefer the more undisturbed forested areas. Sensitive habitats or known locations of sensitive species are shown on the attached maps as sensitive areas.

Unlike flora, many fauna are highly mobile and the corridors they use are often critical to their viability. During a hard winter, the oak woodlands at the lower elevations become critical to the wintering deer, and turkey populations. The migration routes used by the deer follow the ridges descending from the Snowden Plateau. During the Spring and Fall many of the migrating neo-tropicals migrate along the riparian corridors and associated uplands where food is more readily available. Migration and connectivity corridors are illustrated on one of the attached maps.

For the fauna, the Catherine and Major Creek canyons are one of the last remote and relatively undisturbed refugia left in this area. As landuse changes continue to fragment habitat on the Snowden Plateau, the open space planning area becomes an increasingly more critical habitat to the fauna.

FIRE

Fire History

In the past 11 years (1982-1992) approximately twenty-six fires have occurred within the Catherine Creek Area. All fires were human-caused, 11 were size class A (.25 or less acres), 10 were size class B (.25 to 9.9 acres) and 5 were size class C (10 to 99 acres)..

Fire has been an important disturbance in Pacific Northwest forests for thousands of years. Climatic and cultural changes over these years have
affected the distribution of forest types, fire ignition and behavior patterns, and subsequent ecological effects. The frequency of fire in the forest environment depends upon an area's vegetation (fuel), topography, climate, and the coincidence of ignitions with the weather and fuel moisture conditions that allow a fire to burn. Historically, the lightning has been a significant source of wildfire ignition on the Scenic Area. However, over the last few decades, the highest risk and most damaging wildfires have been associated with human activity.

The exclusion of fire (natural regime plus the result of fire suppressiol1" activities during most of the 20th century) has increased fuel loadings arid"" ladder fuels (dead and down woody residues, seedlings, saplings and other ground vegetation) in natural undisturbed stands (stands with old-growth characteristics). These fuels are usually continuous over

most of the area, although, kind. and type varies with habitats, successional stage, aspect and elevation.

Fire Suppression

The topography is moderately steep, resulting in slightly longer response times for initial attack. The steeper slopes are found along Major and Catherine Creek drainages. The current fire suppression objective for the Catherine Creek planning area is to stop all fires. Meeting this objective could be difficult and dangerous in areas with high fuel levels.

Fuel Conditions

The area is a mixed conifer forest and oak woodland with open grassy areas. Live ground fuels such as perennial grasses, forbs, shrubs, and brush are well established throughout the planning area. Potential fuels in the area consist of fallen trees, or down woody material, as well as green vegetation. These fuels are continuous over most of the area though the types of these potential fuels vary with aspect and elevation.

Fuel loading within the planning area is low to moderate, with some smaller isolated areas of higher fuel concentrations.

Air Quality

Air is an integral part of the forest environment. Its character directly affects plant, animal and human habitat. A description and understanding of air quality is not limited to the watershed in question but to a far larger area. Air quality in the this larger area is generally high attributed to remoteness from industry, and lower, urban occupancy. The major sources of air pollution are vehicle emissions, dust from industrial operations, and smoke particulates from the burning of unwanted vegetation and logging residues. The major concern for a possible impact on air quality as a result of management activities within the Major and Catherine Creek watershed is from the use of prescribed fire to disposal of residues (slash) and other unwanted vegetation.

CULTURAL RESOURCES

People have inhabited the interior Northwest for at least the past 11,000 years, but strong evidence of human occupation of the Columbia Gorge is weak until about 10,000 years ago. For the first half of the Holocene, Native Americans appear _o have been highly mobile. Although artiodactyl bones are the most common faunal remains in early Holocene sites, salmon bone found in sites in the Gorge and ground stone tools found in other locations indicate that the inhabitants had a diverse diet. Based on the relatively small number of early Holocene sites found to date, population densities probably were quite low.

Starting about 5000 B. p., some interior Northwestern groups began to invest more labor in the construction of their dwellings, in facilities for plant processing and fishing, and in storage. This marked the beginning of the semi sedentary lifeway encountered by European American explorers in the early nineteenth century, although it is not until about 2000 B.P. that large villages begin to appear.

The European invasion of North America began in the 1500s, and had dire consequences for the Native Americans, although some short-term changes, especially the use of horses, appear to have been positive. Epidemics raged throughout the hemisphere, wiping out the majority of the Native American population.

European American settlement of the interior Northwest began slowly, at first but built momentum as improvements in transportation created easier access to national and regional markets. Just like their Native American predecessors, European American_ living in the project area alternated between the wetter but colder uplands and the drier lowlands that had a:l earlier spring. Traditional use of project area, both Native and European American, appears to have declined after the 1950s.

Salmon fishing along the Columbia River and its major tributaries was one of the major activities of the summer, although preparations for fishing started as early as the previous winter, when people made repairs to their fishing tools during the idle months. Many people moved to special summer fishing locations, but other groups continued to move up in elevation through the spring and summer to gather berries and hunt deer, elk, and bear. For the people inhabiting the project area, berry fields on the slopes of Mt. Adams were especially important (Spier and Sapir 1930), and the Major Creek Canyon was a commonly taken route (May 1982). As snows began in the uplands during September or October, people that had gone up into the highlands began to return to prepare the villages for winter. Acorns were harvested in November after they had fallen from the trees. They were roasted near the place of gathering, and then transported to the river villages, where they were stored in lined and covered pits (Spier and Sapir 1930:185).

Little information is known about the specific role of the project area in the local settlement and subsistence system. A village may have been located in the Rowland Lake basin, but this has not been confirmed. A second possible ethnographic site was located near the mouth of Major Creek.

Settlement

The earliest known claim in the project area was staked by David L. Tracy in 1882 in the middle of the slope that bears his name. By the mid 1930s, members of the Lauterbach family had acquired many of the parcels on the lower slopes of Tracy Hill and Sunflower Hill (Metsker 1934). These lands formed the core of the property that the TPL sold to the USFS.

Transportation

Prior to the 1850s, most large vessels on the Columbia were wind propelled, but by the late 1850s, steamboats cruised the Columbia. Landings were built at both White Salmon and Lyle. Wagon roads linking the more heavily populated uplands with the river passed through the project area as early as the 1870s. Shows a road running northwest through along the crest of Tracy Hill. Its southern end is not shown, but it was probably in the vicinity of the mouths of Catherine and Major Creeks.

The Columbia River and Northern Railroad, constructed in 1902-3, linked Lyle with Goldendale, providing for the rapid movement of agricultural goods from
the interior to the river. Goldendale, Lyle, White Salmon, and the project area became connected to the national railroad system when the Spokane, Portland, and Seattle Railroad (S.P. & S.) was constructed along the Washington side of the Columbia Between 1906 and 1909. The construction of the S.P. & S. accelerated the development of the entire region.

Soon after, the automobile gained in popularity. The North Bank Highway, generally considered the ugly sister of the Columbia River Highway in Oregon, was built in 1907 by the State of Washington, in cooperation with the counties lining the Gorge. By the 1930s, a network of primitive roads paralleling the river linked the northern portions of the project to White Salmon and 'Lyle and the paved highway along the river. One of these routes ran east from Bingen, skirted the north edge of the McMahon Wall (Coyote Wall), and then paralleled the tree line crossing Major Creek and continuing east to the Balch area (Metsker 1934) .

The grazing of horses in the project area set the stage for the raising of livestock brought by European Americans in the 1870s. Both cattle and sheep were raised initially, and early European American settlers soon realized the advantages of alternating between the dry, grassy lowland slopes near the river and the better watered, but colder "prairies" of the uplands. Chapman reported moving sheep from Trout Lake to near White Salmon after the spring thaw as early as 1876 (Klickitat Heritage 1978:2). This two-part land use system continued at least until the 1950s, but after World War II, the project area was used as both spring and fall range (William Lauterbach, Jr., personal communication, 1994). One of the last cattle drives through the project area was in 1957, when members of the Allen and Lauterbach families took three days to drive cattle from the project area upland to Trout Lake.

Logging

Two lumber companies used portions of the project area. The major Creek Lumber Company (also known as the Dorr Lumber Company), started operations in the early 1910s. The mill was located at Dorr on the road from White Salmon to Snowden. After securing a right-of-way along Major Creek, Dorr built a seven-mile-Iong flume that contained 735,000 board feet of lumber.

The Swan-Haman Lumber Company (also known as the Swan-Hammond or Catherine Creek Lumber Company) was in operation by at least 1906, when a sawmill was built at Bristol, about 3.2 km (2 mi) east of the project area. The company had offices in White Salmon, but a small company town with a post office was established at Bristol. This small operation had a flume running down the Catherine Creek drainage to shipment points along the river and the railroad.

EXISTING HUMAN USES

Recreation

The Catherine/Major Creeks Open Space Recreation Intensity Class (RIC) consists mostly of RIC 1. RIC 2 and 3 are also located within the planning boundary. RIC 2 is located below the old highway and west edges of planning boundary and RIC 3 is located in the Summerhill area and below the old highway. The Summerhill area i_ also designated Public Recreation.

The majority of users, upwards of 80 - 90t, participate in hiking and nature appreciation. This use occurs in late Febuary through early May and tends to be concentrated in the lower slopes of the Catherine Creek area. The main attraction is the dramatic early spring display of wildflowers, the numerous cultural sites and unique geologic features the area offers. Many of these attractions are located in the lower portions of the Catherine and Major Creek drainages. There will probably never be a significant amount of use during the summer months because of the warm temperatures and lack of water.

Horseback riding, mountain bike riding, off highway vehicles (OHV) use and deer and turkey hunting are other uses that have been observed. Hunting for both deer and turkey probably occurs over most of the area during the months of September through November. OHV use has been observed in the lower Catherine Cr. area and in both forks of Major Cr. The use tends to be confined to existing roads and abandoned road beds. Horseback and mountain bike riding is also usually confined to existing roads, but has been observed over most of the area. OHV, mountain bike and horse back riding tend to be intermittent, but most likely occur during the spring and fall when temperatures moderate.

Recreation use has readily, but slowly increased since the Forest Service acquisition of the Lauterbach parcel in 1987. Use at the trailhead has increased from about 10-15 cars per day on a nice spring weekend in 1992 to approximately 20 cars per weekend day in 1994. All recreation uses will increase, particularly hiking and nature appreciation, as the people discover that much of the area is now in public ownership and how interesting and beautiful this area is. Use should continue to be concentrated in the early spring because of the sites characteristics and weather pattern.

Grazing

Most grazing has been excluded in the open space since the implementation of the Interim Guidelines. Grazing still occurs on the Tuttle property, BIA Trust lands, Kreps property and SDS lands. Apparently an adjacent land owner has bought the grazing rights on the BIA Trust lands, but is not grazing it this year. There has been documented cattle tresspass in the lower portions of Catherine Creek originating from the BIA Trust lands as recently as 1993 and the Labrinth area originating from the Kreps property. There also appears to be some minor problems with cattle wandering into Open Space in the upper reaches of the West and East fork of Major Creek from SDS lands and other adjacent lands.

Other Uses

Other uses include transmission line easements and their maintenance and road easements.
Transmissions Lines: BPA (2 lines), Klickitat PUD, Northwest Natural Gas Pipeline
Roads: C.M. Atwood, Major Creek, power line access, numerous abandoned old roads:

Landscape Analysis
Synthesis

WATERSHED CONDITION BEFORE 1850 (PRE-SETTLEMENT)

Given the likely fire frequency of the area, one can piece together what the watershed vegetation was like prior to European settlement. The Snowden Plateau was mostly forested with wet meadows and dry south-facing slopes of grass/oaks/pines. Fires were relatively frequent, about every 50 years depending on the aspect and dryness and were probably more often non-lethal under-burning. These fires would have created a far more open forest than is found today and with scattered large trees. The understory would have been kept relatively open with younger and more vigorous shrubs.

At lower elevations in the pine/oak communities the fire frequency would have been every 1 to 10 years. This would have created a much more open forest of large oaks and pines. The frequent fires would have eliminated all of the encroaching firs' thus expanding the area of oak woodlands. Likewise, in the drier oak woodlands, the shrubs would have been eliminated and replaced by bunchgrass communities. The open grasslands would have been native bunchgrass communities with a rich herbaceous component (all of which have been lost to grazing).

Major Creek would have been anadromous to the falls, and may have been anadromous further upstream. It is unknown if natural or human causes (e.g. log fluming) may have caused channel conditions which led to the blockage (water falls). There would have been better spawning habitat in Major Creek before logging and fluming. Catherine Creek may not have been blocked at its mouth as it is now as a result of railroad and highway construction.

Important ecological processes include fire, land use changes, and genetic viability of floral and faunal populations.

FIRE

The vegetation would have been in a more dynamic state of flux due to fire, but the ecosystem as a whole would have been far more stable. The flora and fauna which are adapted to frequent fires would have colonized those areas with frequent fires and those less tolerant of fires would have colonized others areas with less frequent fires. But at all times there was a stability in that the species were present to colonize the changing conditions.

Today, with fire exclusion, the vegetative communities have accumulated large fuels loads which have created conditions for a hot catastrophic fire. Such a fire would totally burn the vegetative communities over a large area, totally eliminating the habitats for the flora and fauna. It becomes questionable as to how easily the former vegetation would re-colonize and the original faunal habitats would not return for perhaps hundreds of years. Many of the Fauna would perhaps never come back. Fire exclusion is also causing less sinister events such as permitting conifers to slowly encroach and shade out the oak woodlands.

LAND USE CHANGES

Land use changes have greatly influenced this watershed. The area within the NSA (Major and Catherine Creek drainages) has been influenced more by grazing and forest practices than by agricultural and residential uses as has happened on the Snowden Plat_au area. On the Snowden Plateau the forested landscape has undergone a steady change to managed forests, agriculture, and residential development. These land uses have created a permanent change which are generally not compatible with most flora and fauna. The former forested landscape is now fragmented to the point that faunal migratory corridors are questionably functional. Wetlands have been drained or overgrazed, meadow areas have become agricultural lands, and large areas of forest have been cleared; all of these activities have diminished important habitats for flora and fauna. Sedimentation has increased and water quality has been heavily impacted by forest practices and agricultural uses including application of fertilizers and herbicides.

IMPACTS FROM GRAZING

The major impacts to ecological processes imposed by grazing relate to the selective elimination of palatable flora and localized impacts to streams and springs. The loss of the native bunchgrasses are a result of extensive over-grazing of the western grasslands. In this study area, along with the bunchgrasses went vast areas of rich herbaceous species as well, such as balsamroot and perhaps lupines. Many of these species have been replaced by exotic species and re-establishment will take enormous effort and time. Noxious weeds have infested vast areas along roads, utility corridors, and cow trails. Impacts to springs and streams has likewise been enormous. Bank erosion, sedimentation, loss of fish habitat, and loss of other aquatic life is becoming more and more documented. Again, it will require a great dedication of time and effort to restore these impacts.

GENETIC VIABILITY

Floral and faunal populations were more viable as a result of greater genetic connectivity to other adjacent populations in surrounding habitats elsewhere in the Snowden Plateau and in the Klicitiat and White Salmon river drainages. Wildlife would have moved freely to these other locations and a seed source of the flora adapted to the area was always close by.

As the habitat continuity is fragmented, the genetic linkages become more tenuous and this slowly diminishes the viability of the local populations.

FUTURE TRENDS

If fire exclusion continues, the ecological communities found within this area will be at an increasing risk of loss due to catastrophic fire. Major and Catherine Creeks will continue to slowly recover from past impacts from logging and grazing and recreation use will continue to increase.

Future trends will undoubtedly see continued land division and residential development in the Snowden Plateau area. With this will come increased road building, land clearing, and agricultural activities. Logging will continue especially to the north and east of Major Creek. With the continuance of these, activities, the natural area will become more isolated and the connectivity corridors will continue to be fragmented and disrupted. The viability of these communities will likely become questionable.

As these catastrophic or slow changes occur, communities of flora and fauna will be affected differently depending on their resilience to these changes. In the event of a catastrophic fire, the open grasslands and oak savannah will likely show rather high resilience while the oak woodlands and fir forests may not depending on the severity and size of a fire. As habitat fragmentation continues, those species less tolerant to human activities or requiring large area of undisturbed habitat will show less resilience compared to those that are tolerant or those that require smaller habitat units. The fisheries in Major Creek are anticipated to slowly improve as habitat improves.

Range of Future Management Actions

Outside NSA

Issues: ONLY recommendations will be made for this area.
Maintain connectivity corridors for fauna (ideas: larger min. lot sizes, less fragmentation, fewer roads, etc), control water quality
(ideas: impose restrictions on herbicide and fertilizer use, reduce sedimentation, etc).

Inside NSA

A) Maintain floral and faunal communities

Ideas: Should prescribed burning and/or mechanical thinning and fuel reductions be used as a tool to restore natural range of variability, open forest, and oak woodlands, and fauna habitats. Should the current processes be left unattended? Should we live with the threats of catastrophic fire? Should any attempt to protect and enhance sensitive flora and fauna be implemented (increased snags for Lewis' woodpeckers, more down woody debris for California mountain kingsnake, etc). Should there be any attempt to re-establish the native grasses and herbaceous plants?

B) Fisheries

Ideas: Should spawning gravels, pools, and wood debris be'increased? Should riparian vegetation be enhanced?

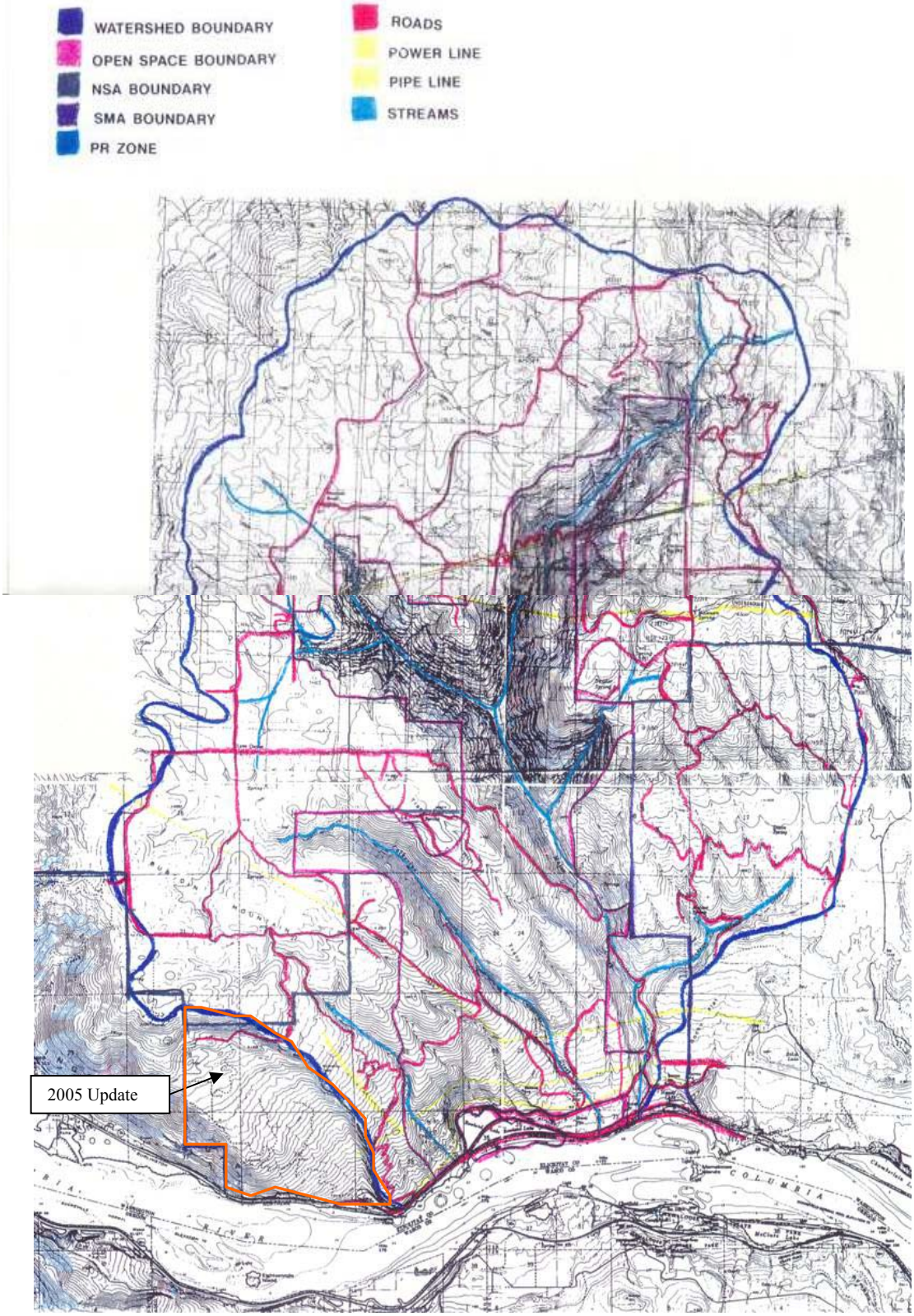
C) Recreation

Ideas: How many trails and which uses are compatible with flora and
fauna? Location of trail and which area could be left as dispersed u_e (could develop trail south of county road and leave area north open to dispersed use or develop trail on both sides of county road). How to control numbers of users before or when resource damage is found (limit size of parking, channel people to one area?)? Should certain uses only be allowed at certain times of year (no horses in the spring?)?

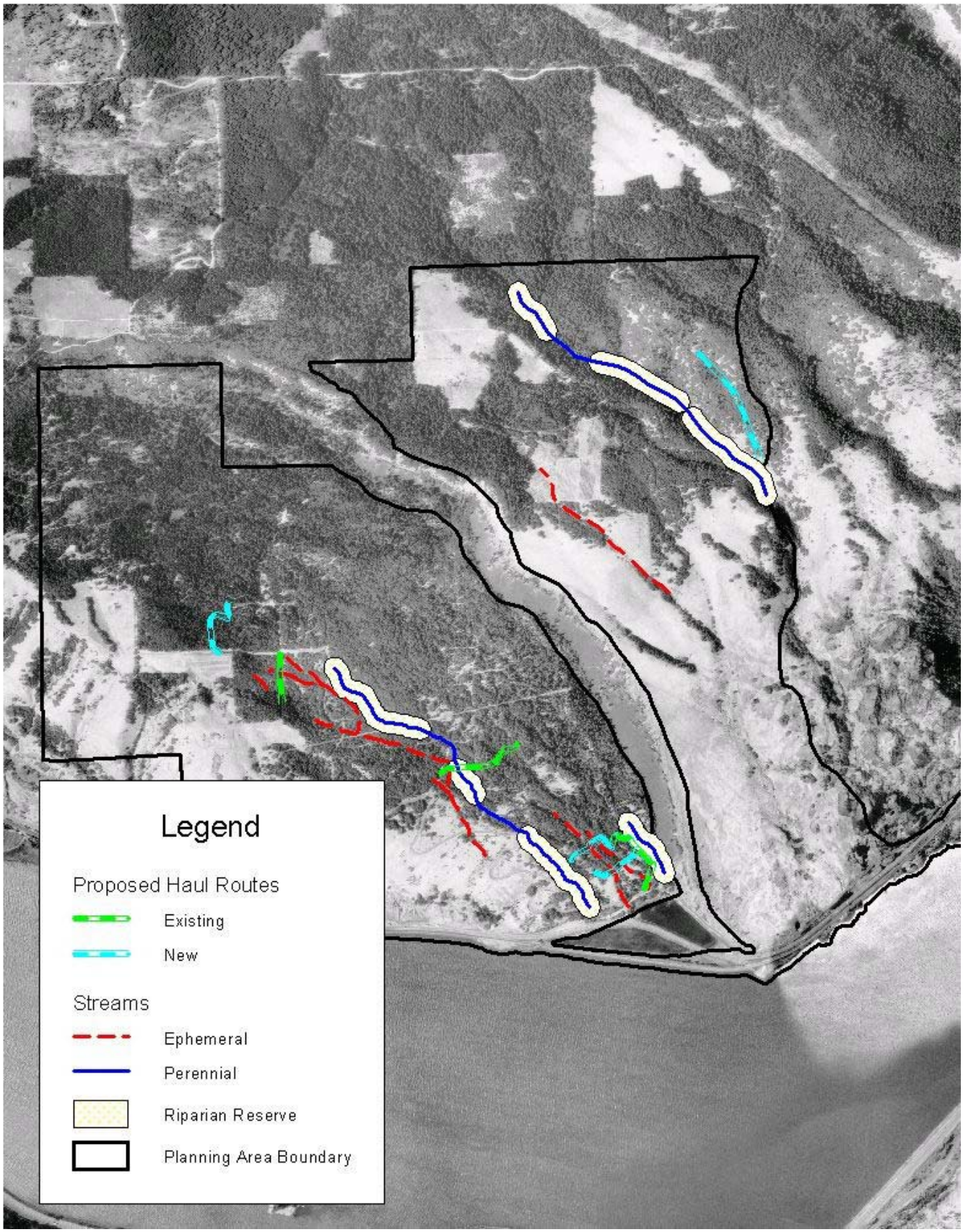
D) Fire Suppression

Ideas: Is a plan needed to ensure that when a fire does occur that the resources are not at risk or that private property is protected. Should a vigorous prescribed fire policy be established to reduce chances of property loss? If yes, need to address air quality.

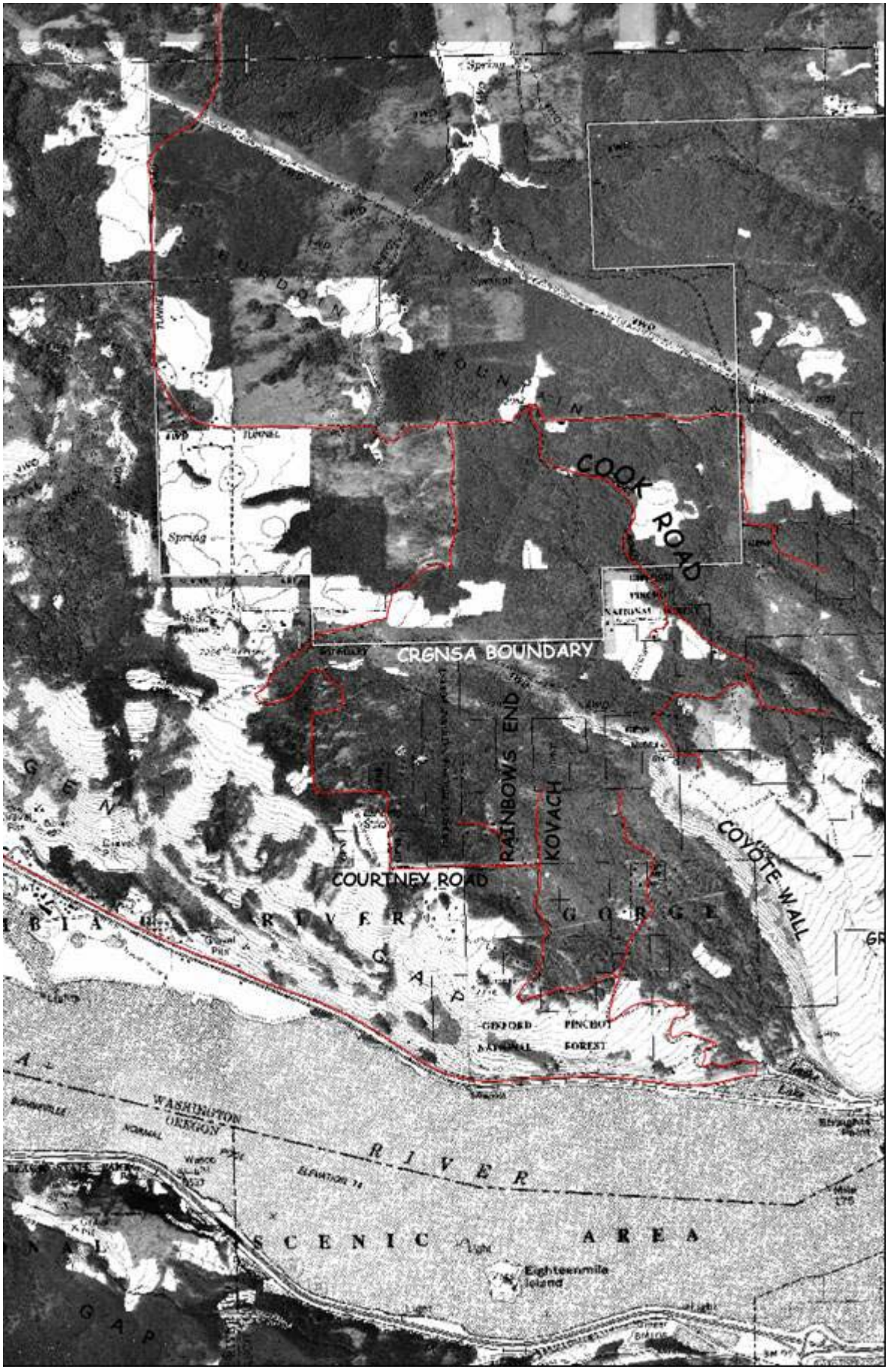
TRANSPORTAION, UTILITIES, AND STREAM CORRIDORS



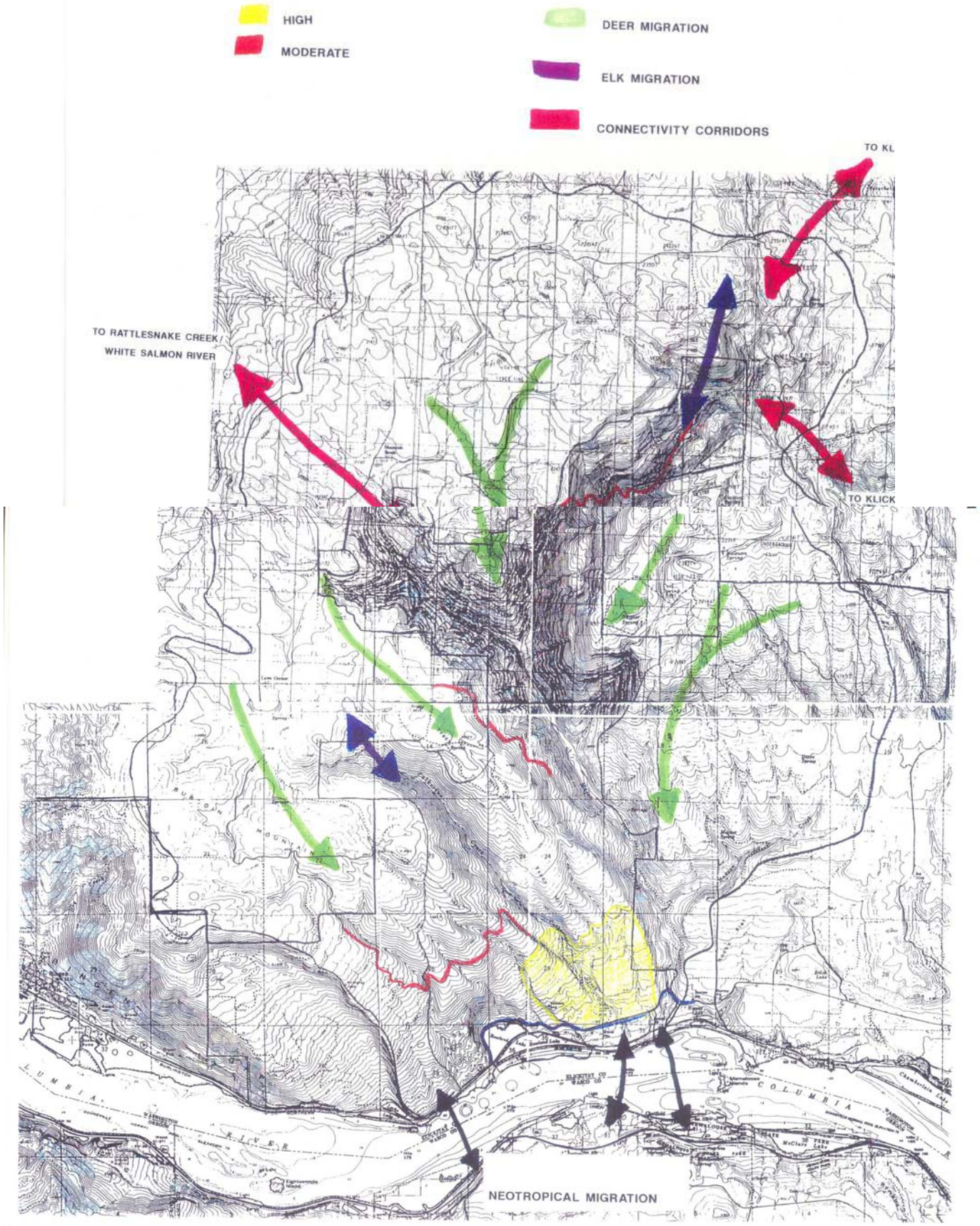
BURDOIN MT. RIPARIAN AREAS



BURDOIN MT. ROADS

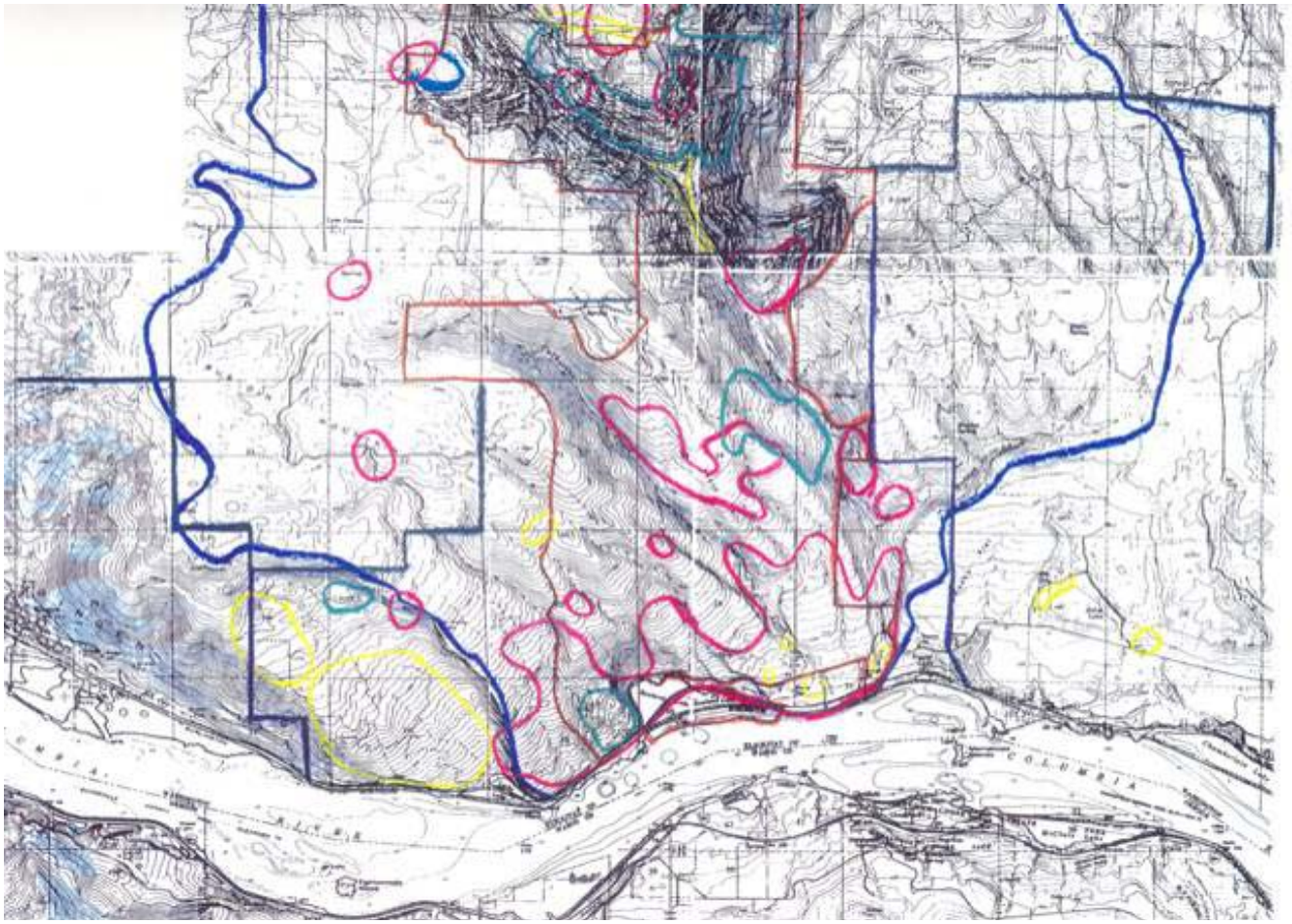


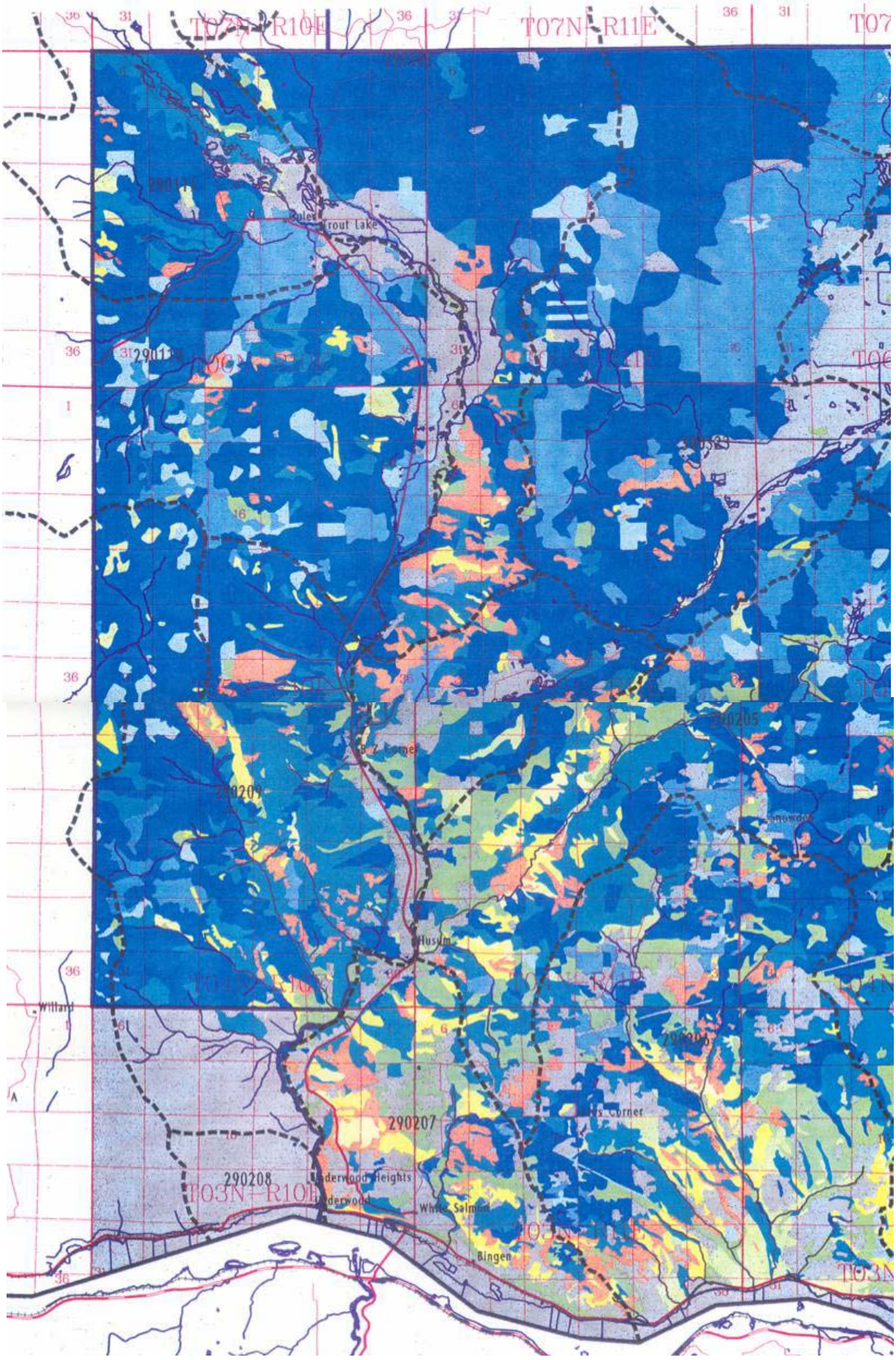
RECREATION USE AND / WILDLIFE CORRIDORS



SENSITIVE AREAS, ECOLOGICALLY SIGNIFICANT AREAS, AND NOXIOUS WEEDS

- WATERSHED BOUNDAARY
- OPEN SPACE BOUNDARY
- NSA BOUNDARY
- SMA BOUNDARY
- PR ZONE
- SENSITIVE AREAS (BOTANICAL, WILDLIFE, ARCHAEOLOGICAL)
- AREAS OF ECOLOGICAL SIGNIFICANCE
- NOXIOUS WEEDS

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Trout Lake
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Husum
Willard
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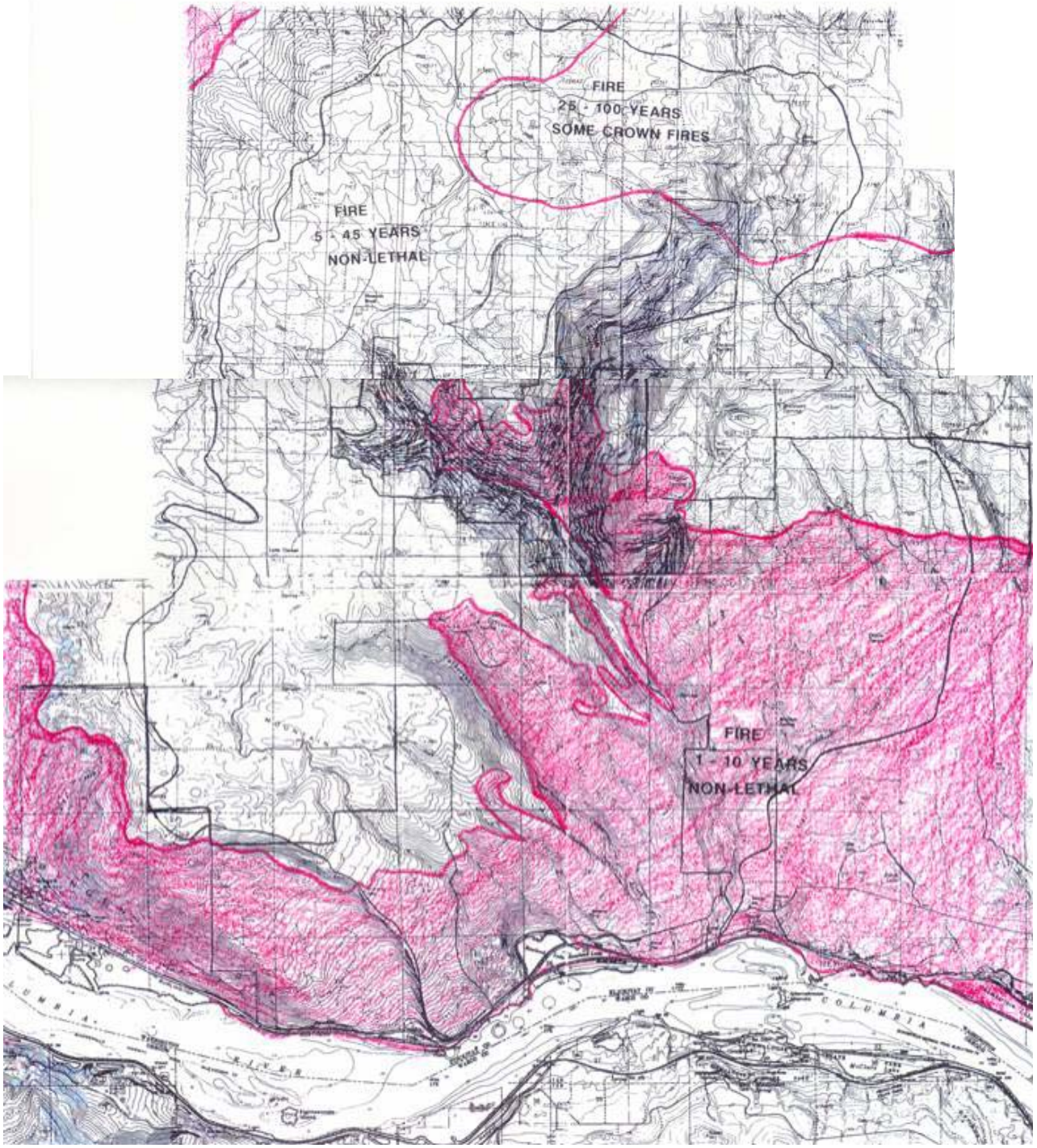
Underwood Heights
Underwood
White Salmon
Bingen
T03N

PRE-SETTLEMENT FIRE FREQUENCY



CATHERINE CREEK / MAJOR CREEK OPEN SPACE PLAN

July, 1995

This fourth and final Catherine Creek/Major Creek Open Space Plan newsletter contains the selected "Desired Future Condition" for the planning area, an implementation schedule and a monitoring program. The Desired Future Condition sets overall direction for the planning area by representing a set of integrated actions which will achieve a common vision. The selected Desired Future Condition is, in effect, the Open Space Plan.

The selected Desired. Future Condition was modified by the Forest Service interdisciplinary team of resource specialists in response to public comment on the April 14, 1995 newsletter. The Forest Service received 57 letters and eleven telephone comments on the newsletter. An abbreviated summary of comments is enclosed in this newsletter. The complete summary is about 25 pages in length, and is available from the Forest Service upon request.

The USDA Forest Service, Columbia River Gorge National Scenic Area, developed this plan to set overall direction for the 7,200 acre Open Space area. Approximately 3,100 acres are National Forest lands, 1,900 acres State lands, and the remaining 2,200 acres are private lands. The Desired Future Condition represented in this newsletter provides overall guidance for National Forest lands or lands acquired by the Forest Service in the future. The Desired Future Condition can apply to other lands as well, but would be implemented only on a voluntary basis by land owners. The Forest Service would pursue cooperative opportunities with landowners to implement the plan on non-National Forest lands.

The Open Space Plan directs resource management; protection and enhancement; reviews existing uses to determine compatibility with open-space values; addresses ongoing resource and management issues; defines National Forest land management more specifically than the NSA Management Plan; and provides a framework for future projects. Site-specific federal proposed projects will be analyzed in more detail consistent with the National Environmental Policy Act.

The Forest Service will now move ahead with the environmental analysis for the trails and "Node" trailhead. Your comments on specific trail routes and design details for the trails and trailhead are being sought now. We intend to shortly publish trail/trailhead alternatives. We also intend to complete an environmental assessment for noxious weed control in fiscal year 1996. Contacts for these projects are listed in the last section of this newsletter. Other priorities are listed in the enclosed implementation schedule. We welcome your ongoing participation in the site specific planning for the Catherine Creek/Major Creek Open Space area.

A big "thank you" to all who provided comment on the April newsletter, and who have participated throughout the process. We now need to move forward with control of noxious weeds and implementation of trail access. We appreciate your continuing involvement in the future of the Catherine Creek / Major Creek area.

Sincerely,

/s/Arthur J. Carroll

ARTHUR J. CARROLL Area Manager

SUMMARY OF CHANGES TO THE PREFERRED DESIRED FUTURE CONDITION

The following changes, have been made to the preferred Desired Future Condition in response to comments on the April 14, 1995 newsletter. An abbreviated summary of comments is enclosed at the end of this newsletter. The complete summary of the 57 letters and eleven telephone comments is about 25 pages in length, and is available from the Forest Service upon request.

*Major Creek Trail! Summerhill Trailhead (Node 2)
The Major Creek loop trail and "Node 2" trailhead have been dropped. Reasons include concern for fragmenting wildlife habitat, construction and maintenance difficulty in the steep slopes, cost, and lack of demonstrated demand. A consequence of this change is that horse use would no longer be allowed anywhere in the planning area. However, the Forest Service is working on a plan for the 31 mile Klickitat Rails-to-Trails, just a few miles east of Catherine Creek. This trail has potential for a multiple use trail. We invite all persons interested in horse riding to become involved in this project.

* Mountain Bike use on the Atwood Road
Mountain bikes would be permitted only on the Atwood Road in the Catherine Creek area. To reduce user conflicts, the following guidelines will be considered: uphill only traffic for bikes, obstacles to slow bikers, seasonal restrictions, and requiring bikers to yield to hikers. To ensure mountain bikes stay on the Atwood Road, the Forest Service would periodically monitor the area to determine if mountain bikes are travelling *off* the Atwood Road and creating erosion, rutting or multiple trails. If such damage occurs, the Forest Service would first post warning signs and work with mountain bikes groups to stop unregulated mountain bike use. If unacceptable resource damage persists, the Forest Service would close the entire Catherine Creek area to mountain bikes. See monitoring program for more information.

* ShootinglHunting
Hunting would not be regulated by the Forest Service, but some additional shooting restrictions would be imposed. Target shooting would be prohibited. Shooting over trails and in the "node" would be prohibited. A 150 acre springtime "no-shooting" zone would be established around the foot trails in the lower Catherine Creek area. This seasonal closure would lessen the perception of gunfire threat to hikers in the most heavily used areas, and would not substantially decrease the amount of area usable to spring turkey hunters.

* Dispersed Camping
Dispersed camping would continue to be allowed, with some restrictions. A springtime "no-camping" zone would be established around the foot trails in the lower Catherine Creek area. Campfires would continue to be prohibited in the fire season. To minimize unacceptable resource impacts, group camping size would be limited to 20 people. Groups of twelve or more would be required to obtain a permit from the Forest Service, which would give the agency the opportunity to channel use and monitor impacts. Further camping restrictions could be implemented if unacceptable resource damage occurs.

* Off-Trail and Group Hiking
All users would be encouraged to stay on the trail. Groups of 25 or more would be required to obtain a permit and to stay on the trail. Off-trail use would be monitored, and other restrictions put in place if damage does occur. These restrictions could include requiring all users to stay on trail, limits on group size, permits, etc. See monitoring program for more information.

Climbing up through the arch would be actively discouraged. Signs would be placed at the bottom of the arch outlining the dangers to people and the damage to the land that is caused by people walking through the arch. Private individuals and groups would be asked to stop publishing photos of people walking on the rock slope below the arch with captions stating "on the trail to the arch".

* Hanson Creek Wildlife Corridor
Hanson Creek has been aclged as a "secondary corridor" to the Desired Future Condition map. Catherine Creek and Major Creek corridors provide connectivity into other drainages. Since Hanson Creek does not, it is considered a secondary wildlife corridor.

* California Mountain Kingsnake Enhancement
Wildlife species to be enhanced now includes reptiles such as the California Mountain Kingsnake.

* Road Obliteration
To help prevent noxious weed invasion, roads would not be "obliterated". They would be blocked to vehicular access and allowed to naturally revegetate; with some seeding of native plants if necessary.

* The Bath-Tub Spring
The bath-tub would be left in place, but the Forest Service would try to make the spring source around the bathtub function more like a natural spring.

* Klickitat PUD Powerline
The Forest Service would encourage moving the PUD line to an existing road ROW outside of the Open Space to facilitate ready access for maintenance and reduce maintenance activity impacts to the natural area. The previous newsletter could have been construed as pursuing burying the powerline in its present location, but this action could leave the corridor open to noxious weed invasions.

THE DESIRED FUTURE CONDITION

The Forest Service planning team developed a Desired Future Condition (DFC) for the planning area. The vision of the DFC is briefly discussed, the main points of the DFC are described, and a map is displayed. The objectives and actions of the DFC are displayed in Table 1, and the expected results in Table.2.

Vision
Direct recreation use in the Catherine Creek area to one "intensive" recreation node in a less sensitive area. Manage and direct recreation use in highly popular and moderately-highly sensitive areas to meet expected demand while minimizing resource damage. Create semi-primitive to primitive unroaded, dispersed recreation experience in the Major Creek canyons.

Restore presumed pre-European settlement ecological processes and communities (described below) throughout the planning area. Leave the Major Creek canyons as undeveloped corridors for wildlife mobility.

Discussion
Sensitive resource areas could include areas with cultural resources, sensitive plants or animals, wetlands, riparian areas or adjacent private lands. More intensive recreation development and uses would be directed to areas with easier access, gentle topography and absence of sensitive resources. In highly popular and sensitive areas, recreation use would be channeled to designated trails.

HUMAN USES
One recreation "node" would be created with developed facilities to support and direct recreation activities in the Catherine Creek area. The node objective is to create an attractive experience in a less sensitive area to draw recreation use away from more sensitive areas. The node would be located on National Forest lands zoned "Agriculture" south of Road 1230. Parking (up to 25 cars), a fully accessible interpretive trail, restroom and picnic facilities (tables or benches) would be provided. Drinking water and garbage cans would not be provided. "Pack-it-in, Pack-it-out" would apply to the entire planning area. Depending on future Forest Service land acquisitions, alternate parking sites or longer interpretive trail routes could be considered. The

Washington State Department of Transportation has agreed that its rock pit located off Highway 14 could be considered as a trailhead alternative in the environmental analysis process. A private parcel separates this rock pit from the National Forest parcel south of Road 1230 at Catherine Creek.

Two short hiking loops would be designated in the highly popular, yet sensitive lower Catherine Creek area. The objective of these trails would be to channel this area's substantial dispersed use to minimize resource impacts. A "moderate - difficult" accessibility level would be provided to the bottom of the arch. "Primitive" trail standards would be considered for the remainder of the designated foot trails, at least initially. All users would be encouraged to stay on the trails in this area, and groups of 25 or more would be required to obtain a permit and stay on the trails. Dispersed hiking use would be monitored and further, regulations may be implemented if damage does occur.

The Atwood Road would be designated as a hiking and non-motorized biking route. A short connector trail may be needed on National Forest lands west of the Open Space to connect to a public county road. If this trail connection is necessary, a motorbike barrier would be placed at its junction with the county road. Mountain bikes would be required to stay on the Atwood Road. The Forest Service would periodically monitor the area to determine if mountain bikes are travelling off the Atwood Road and creating erosion, rutting or multiple trails. If such damage occurs, the Forest Service would first post warning signs and work with mountain bikes groups to stop unregulated mountain bike use. If resource damage persists, the Forest Service would close the entire Catherine Creek area to mountain bikes. See monitoring program for more information. To reduce bike/hiker conflicts, the following measures will be considered: uphill-only bike traffic, obstacles to slow bikers down, seasonal biking restrictions, bikers yield to hikers.

No trails would be developed in the Major Creek canyons due to concern for fragmenting wildlife habitat, construction and maintenance difficulty in the steep slopes, cost, and lack of demonstrated demand. Major Creek canyon would be left undeveloped as a corridor for wildlife and a primitive recreation area. Major Creek recreation proposals would be dropped from the NSA Management Plan at the next plan revision.

Horse use would not be allowed anywhere in the planning area. No horse trail would be built in the Major Creek canyon for the reasons stated above. In the Catherine Creek area, the Forest Service is concerned that horses would spread noxious weeds into this botanically important area. Parking limitations (25 vehicle limit required by NSA Plan) would restrict the area available for horse trailer parking at the "node". Off-trail horse use would not be considered due to soil impacts, and the limited recreation opportunity afforded by riding the existing Atwood Road (about 3 miles one way) makes the investment in horse related facilities questionable. While still in the planning stages, there may be a better opportunity to provide a quality horse ride at the nearby 31 mile Klickitat Rails-to- Trails project.

Climbing up through the arch would be actively discouraged. Signs would be placed at the bottom of the arch outlining the dangers to people and the damage to the land caused by people walking through the arch. Private individuals and groups would be asked to stop publishing photos of people walking on the scree slope below the arch with captions stating "on the trail to the arch".

The remaining planning area would be designated "self-discovery". Dispersed hiking would be allowed, but not encouraged on National Forest lands. No trails, routes or visitor signs would be provided. Existing roads or trails that are not needed or are in extremely sensitive areas would be eliminated; they would be blocked and allowed to revegetate. Signs would be posted to indicate when users leave public land.

Target shooting would be prohibited. Shooting over trails and in the node would be prohibited. A springtime "no-shooting" zone of about 150 acres would be established around the foot trails in the lower Catherine Creek area. This seasonal closure would lessen the perception of threat by gunfire to hikers in the most heavily used areas, and would not substantially decrease the amount of area usable to spring turkey hunters.

Dispersed camping would continue to be allowed, with some restrictions. A springtime "no-camping" zone (corresponding to the "no shooting" zone) would be established around the foot trails in the lower Catherine Creek area. Campfires would continue to be prohibited in the fire season. To minimize resource impacts, group camping size would be limited to 20 people. Groups of twelve or more would be required to obtain a permit from the Forest Service, which would give the agency the opportunity to channel use and monitor impacts. Further restrictions could be placed on dispersed camping if monitoring indicates unacceptable resource damage.

Dogs would be required to be leashed in the node south of Road 1230. Dogs would not be required to be leashed north of Road 1230, but dog use would be monitored to see if any recreation or wildlife conflicts occur. Leash requirements could be implemented north of Road 1230 if conflicts are documented.

Visitors would be informed of the dangers of poison oak, ticks and rattlesnakes.

Natural Resources would be managed to restore presumed pre-European settlement ecological processes and communities.

Ecological processes before European settlement created a disturbance pattern of frequent low intensity fires, drought/wet cycles, and contribution of large woody debris (LWD) as trees fell into creeks. Under the "presettlement" fire cycle, it is assumed (fire history available from the Forest Service):

1. Open grassland areas burned every 1-5 years and looked much as today, except more benefit to the fire dependant sensitive species, and less to non-fire dependant native grass species.
2. The conifer/oak zone burned-every 5-10 years, maintaining more openings and a savannah-like character than today.
3. The upper coniferous forests burned every 25-100 years, resulting in patchy, large, late successional trees, less underbrush, and more snags than today.
4. Wet areas burned less readily than drier areas, resulting in well developed riparian areas with older trees than today. 5. Side tributaries would have infrequently scoured. 6. Drought/wet cycles led to some extended drought periods where insect kill increased rue risk.
   More frequent fires resulted in more open stands, with a more diverse species/age composition.
7. Trees periodically fell into creeks, backing up gravel and creating pools. Creeks periodically scoured, distributing gravel downstream to create spawning beds and pool habitat.

Patterns of rue distribution and large woody debris in streams have been altered in the Open Space area by past logging, and by past and current fire suppression and grazing. In the watershed outside of the Open Space area, these patterns have been altered by past and current fire suppression, logging, grazing, farming, residential development and urbanization.

The NSA Management Plan prohibits commercial logging, mining, road building, or major development in Open Space. Within the watershed, but outside of Open Space, logging, farming, road building, fire suppression, and residential development occurs. This Desired Future Condition may include recommendations for resource enhancement on private or state lands within Open Space, or lands outside of Open Space. Implementation of recommendations on lands outside of National Forest jurisdiction would be voluntary on the part of the landowner.

Activities are proposed to enhance native plant communities (riparian, herbaceous (lupine, balsamroot), shrub, bunchgrass), enhance snag and down woody debris distribution, re-introduce native riparian wildlife (beaver, frogs, turtles), enhance reptile communities (e.g. California Mountain Kingsnake), rehabilitate erosion, rehabilitate soil compaction, add large woody debris to Major Creek, and introduce prescribed rue or thinning to mimic the presettlement disturbance regime.

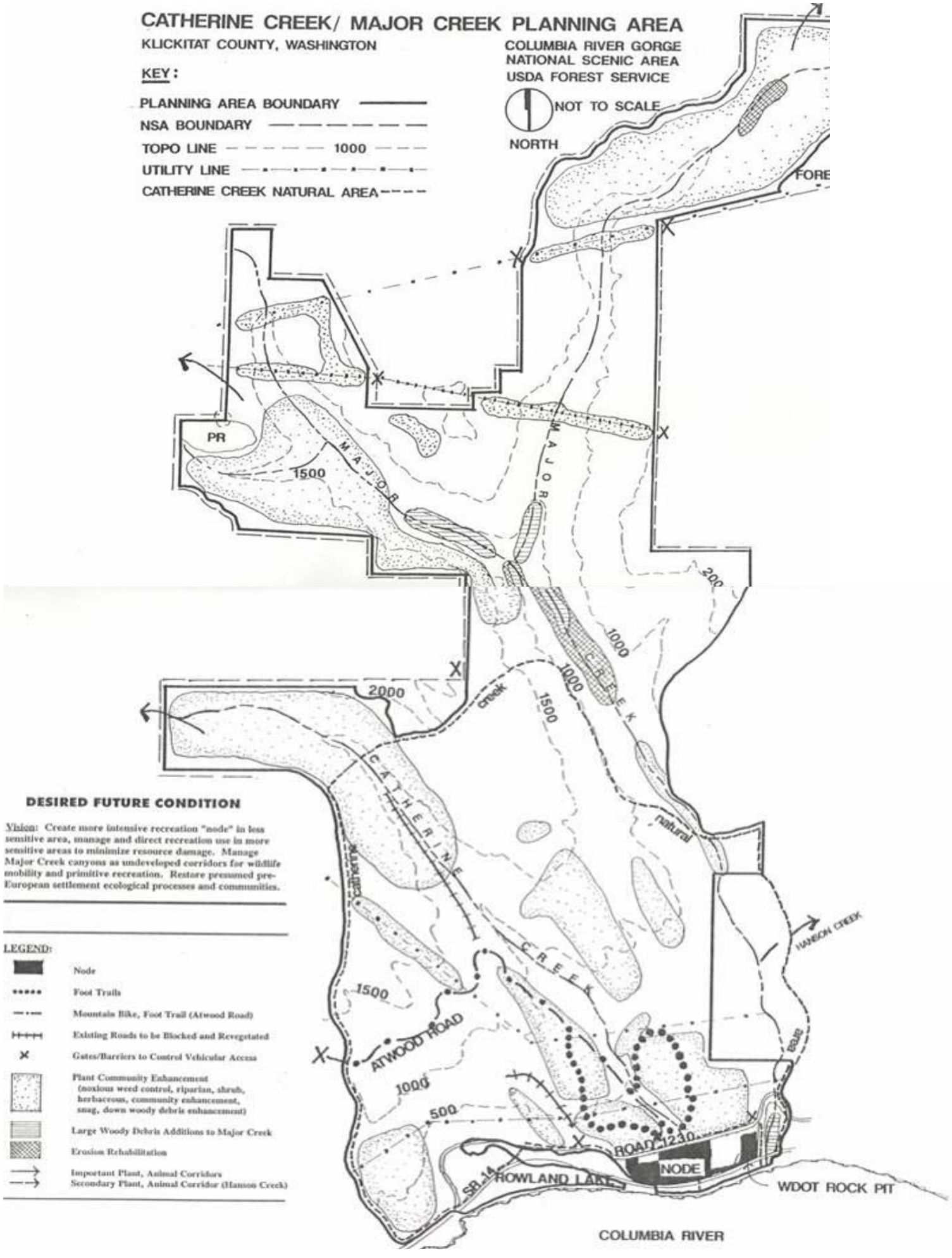
Direction is provided to develop noxious weed control strategy consistent with Forest Service, State and County regulations which utilizes all methods that do not adversely affect other sensitive resources. At this level of planning, no methods (including herbicides) would be precluded. The noxious weed control plan would be coordinated with adjacent landowners to prevent weed reinfestation of the planning area.

A National Scenic Area boundary adjustment would be pursued to maintain corridors. This provision essentially reaffirms the NSA Management Plan objective. A boundary revision would require a further environmental assessment with more specific proposals, and Congressional action.

TABLE 1	DESIRED FUTURE CONDITION: Objectives and Actions
HUMAN USE	(. - Action item)
Recreation Development	Objective: Develop one "intensive" recreation node near paved road to direct recreation use at Catherine Creek. Create attractive experience in less sensitive area to draw use from more sensitive areas. Provide "easy" nonmotorized foot/wheelchair trails, parking, interpretation, restroom, picnic facility. Prohibit shooting. Leash dogs. Day-use only. * Node Location: South of Road 1230; 25 parking spaces.
Recreation Management, Regulation	Objective: In highly popular & moderate-highly sensitive areas north of Road 1230, manage and direct recreation to meet expected demand while minimizing resource damage. Provide non-motorized semiprimitive experience. Designate trails for multiple users; avoid sensitive areas. Provide directional signing. Discourage off trail use by hikers. * Designate foot loop trail system to channel use in Catherine Creek Natural Area. Provide "moderate - difficult" accessibility level to bottom of arch. Consider "primitive" trail standards for remainder of designated foot trails, at least initially. * Designate the Atwood Road for hiking and mountain bike use. Prohibit off-trail use by bikes. Reduce hikerlbiker conflicts by requiring bikers yield to hikers, barriers, uphill only traffic for bikes, seasonal restrictions. . Prohibit springtime shooting and dispersed camping in designated area around foot trails. * Actively discourage use of the arch. Place signs warning of danger to people and the land from scrambling through the arch. Ask other groups to stop publicizing trails through the arch.
	Objective: In most sensitive areas, encourage solitude and "self-discovery". * Designate areas outside nodes or designated routes as "self-discovery"; allow foot traffic only. . Allow, but do not encourage camping. * Provide no signs, direction, facilities, or site interpretation. * Block and allow to revegetate existing NFS roads or trails which lead to sensitive areas. . Gate utility access roads to achieve non-motorized experience. . Post signs alerting users when they are leaving National Forest lands. * Educate users through brochures or trailhead signs to respect private land.

NATURAL RESOURCES	
Resource Protection	Objective: Protect resources as required by NSA Management Plan. * Implement all required resource protection guidelines for new development. * Prohibit commercial collecting of any resource material. . Prohibit personal collecting of sensitive plants/animals, except research.
Resource Enhancement	Objective: Mimic "Pre European settlement" disturbance patterns. * Use prescribed burning or non commercial thinning to mimic fire cycle (as per fire frequency map published in landscape summary (available from Forest Service)). * Add large woody debris to Major Creek to mimic undisturbed stream, until trees in riparian area grow big enough for natural replenishment.
	Objective: Re-establish native communities. * Replant/reseed native plant communities - riparian, herbaceous (lupine, balsomroot), bunchgrass, shrub in utility corridors. . Re-establish historic snag and down woody debris density in forested areas. . Re-introduce native riparian wildlife (beaver, turtles, frogs, etc) in Major Creek. * Re-introduce or enhance native herptiles; e.g. California Mountain Kingsnake.
	Objective: Maintain and enhance connectivity for plant and wildlife habitat. * Work with agencies/Iandowners to maintain important plant/wildlife corridors. . Ensure connectivity in enhancement projects. . Remove interior fences (may impede wildlife mobility). . Pursue NSA boundary adjustment to maintain wildlife corridors.
	Objective: Rehabilitate human-caused resource damage. . Rehabilitate road related erosion. * Rehabilitate erosion or soil compaction in utility corridors. * Rehabilitate gravel pits; clean out trash. * Remove structures not culturally significant, or of interpretive value. . Pursue moving Klickitat PUD powerline to an existing road right-of-way for ready maintenance access. . Rehabilitate dispersed campsite related soil compaction. * Leave "bath-tub" at spring; enhance surrounding area to function more as a natural spring.
	Objective: Reduce disturbance to wildlife and soils. * Pursue transfer to USFS or vacating of county roads to block motor vehicle access. Convert Atwood Road to hikerlbiker trail. . Gate utility corridors. . Block or rehabilitate roads which cause erosion.
Private, State, Tribal, Federal Land and Resource Protection	Objective: Protect private, state, tribal, and federal lands within and adjacent to Open Space area, avoiding methods which may damage sensitive resources. * Develop fire management plan to protect sensitive areas. Emphasize hand/air attack. Identify appropriate dozer areas, assign resource specialists to fire team, address fife rehabilitation. * Develop noxious weed control strategy to utilize all methods which do not affect sensitive resources. Work with landowners to prevent re-infestation
Existing Uses	Objective: Continue existing, allowed resource uses on all planning area lands; pursue strategies to minimize resource damage. * Pursue cooperative opportunities with other agencies, landowners to reduce/prevent riparian degradation.

Table 2	**DESIRED FUTURE CONDITION: Expected Results**
HUMAN USE	
User Experience	Provides variety of experiences. Does not allow equestrian experience.
Social Encounters	Highly social node. Moderately social experience in lower Catherine Creek. Provides solitude in upper canyons.
User Conflicts	Amount and type of use is channeled to reduce user conflicts.
Resource Degradation	Use directed away from sensitive areas. Resource damage more concentrated in areas where trails are designated.
Trespass, Litter	Decreased chance of trespass and litter with more regulated use and education effort.
Traffic Problems	Traffic safety problems on Road 1230 managed by developed parking off road.
Costs	High development and regulatory costs.
NATURAL RESOURCES	
Protection	Resources protected by NSA guidelines.
Encroachment	Reduced encroachment on open areas and oak woodlands.
Fisheries	Large woody debris placement would improve pool/riffle ratio, and provide fish rearing and spawning habitat.
Noxious Weeds	Tools utilized to contain and possibly eradicate noxious weeds. Adjacent landowner coordination needed to prevent reinfestation.
Plant Communities	More diverse native plant communities from replanting! reseeding, results in greater habitat diversity for some bird, insect and rodent species which are prey for other animals.
Snags, Down Woody Debris	Higher density of snags provides habitat for cavity nesters such as woodpeckers. Down woody debris is habitat for rodents which are prey for raptors and mammals.
Riparian Wildlife	More diverse riparian community from wildlife reintroduction. Beaver naturall enhance streams.
Herptiles	More diverse herptile community from enhancement/reintroduction.
Fire	Prescribed fire would reduce fuel build up.
	Reduced risk of catastrophic fire due to: Increased soil nutrients and organic matter storage since frequent low intensit fires remove less matter than large catastrophic fires. Presumed less smoke added to the air more frequently than a large fire. Presumed reduced risk to farms, forests and homes outside Open Space area.
	Prescribed fire would move landscape closer to pre-European regime. Result in more. diverse vegetative pattern; greater habitat diversity for plants and animals. Prescribed fire may escape, possibly damaging adjacent lands.
Thinning	Thinning with equipment could damage trees, introduce pests, cause soil compaction and erosion.
Costs	Forest Service costs higher. Long term cost of fighting catastrophic fire may be avoided.


CATHERINE CREEK/ MAJOR CREEK PLANNING AREA
KLICKITAT COUNTY, WASHINGTON
COLUMBIA RIVER GORGE
NATIONAL SCENIC AREA
USDA FOREST SERVICE
KEY:
PLANNING AREA BOUNDARY
NSA BOUNDARY
TOPO LINE 1000
UTILITY LINE
CATHERINE CREEK NATURAL AREA
NOT TO SCALE
NORTH
PR
1500
MAJOR
MAJOR CREEK
200
1000
1000
2000
1500
CATHERINE CREEK
natural
HANSON CREEK
1500
ATWOOD ROAD
1000
500
ROAD 1230
NODE
SR 14
ROWLAND LAKE
WDOT ROCK PIT
COLUMBIA RIVER
DESIRED FUTURE CONDITION
Vision: Create more intensive recreation "node" in less sensitive area, manage and direct recreation use in more sensitive areas to minimize resource damage. Manage Major Creek canyons as undeveloped corridors for wildlife mobility and primitive recreation. Restore presumed pre-European settlement ecological processes and communities.
LEGEND:
Node
Foot Trails
Mountain Bike, Foot Trail (Atwood Road)
Existing Roads to be Blocked and Revegetated
Gates/Barriers to Control Vehicular Access
Plant Community Enhancement (noxious weed control, riparian, shrub, herbaceous, community enhancement, snag, down woody debris enhancement)
Large Woody Debris Additions to Major Creek
Erosion Rehabilitation
Important Plant, Animal Corridors
Secondary Plant, Animal Corridor (Hanson Creek)

IMPLEMENTATION PRIORITES

listing order confers no hierarchy of priority

High	Moderate	Low
Trail/ Trailhead NEP A Address entire trail system/signs/ pursue vacating Atwood Road	Trail/Trailhead Construction	Pursue vacating Major Creek Road in Open Space area
Noxious Weed Plan/Implementation	Resource Enhancements	Rehab Gravel Pits
Collect native seed/get nursery stock started	Erosion rehabilitation	Riparian Fencing
Develop user map showing private/public lands	Boundary adjustment NEPA Congressional proposal	Enhance "Bath-tub" spring
Property signs in Catherine Creek	Gate/block roads off NFS lands	Encourage moving PUD line to existing road
Fire Management Plan		
Block access roads on NFS lands		
Establish baseline conditions for monitoring program		
<u>Closure Orders:</u> * target shooting * springtime no camping/shooting zone * mountain bike/horse use off Atwood Road (county must vacate Atwood Road before any use of it can be closed) * horse use of Atwood Road when vacated		

MONITORING PROGRAM

Recreation Use Monitoring

Information Needed:

How many users, what types of users, where and when use occurs, user satisfaction Baseline condition of heavily used areas
Ongoing condition of heavily used areas
Correlation of use to damage
Correlation of use to recreation benefits

Standard
Mountain Bikes
* One user trail developed
* Two user trails developed
* 10 dispersed damage incidents/ year * 10 incidents exceeded 2 years/row Monitor/ adjust standards as needed

Foot Travel
* One user trail; any vegetation loss that does not recover in one year.

Monitor/ adjust standards as needed

Action if standard is exceeded

Warning to users, site rehabilitation, monitor Bikes banned
Warning to users, site rehabilitation, monitor Bikes banned

Options: Education/rehabilitation, require users to stay on trail, limit group size, permit only, eliminate publicity, parking controls, trail closures

Procedures
- 1. Obtain baseline condition of heavily used areas: arch, existing user trails, bath-tub area - 2. Obtain baseline condition in areas before trail routes are established
- 3. Establish photo pointS
- 4. Monitor twice yearly; in early spring and early summer when vegetation matures. Photograph photo points, measure trampled areas in the trail log.
Determine if user trails are being established.

Responsibilities: Monitoring set-up: Resource specialists .
Ongoing monitoring: Trail maintenance crew

Resource Monitoring

Wildlife:
Necessary studies will need to be developed in conjunction with state and research biologists. They include *(but* are not limited to):
-Neotropical birds
-Western gray squirrels
-Sensitive species

Raptors
California mountain kingsnake

Vegetation: Establish study plots, photo points for the following:
-Native vegetation communities
-Fir encroachment into oak woodlands
-Prescribed burn plots
-Sensitive species
-Noxious weeds

Cultural Resources: Monitor known sites to ensure protection

Scenic Resources: Evaluate scenic impacts of recreation and resource enhancement projects. Rehabilitate impacts and adjust future projects if unacceptable scenic impacts. Evaluate scenic impacts of ongoing utility maintenance, fire suppression, etc. Work with utilities/agencies to reduce scenic impacts.

SUMMARY OF COMMENTS AND RESPONSES

This section summarizes the primary issues raised in the April 14, 1995 newsletter. The comment is provided in regular type, followed by the Forest Service response in italic type. A complete compilation of public comment and Forest Service responses is about 25 pages, and is available from the Forest Service upon request.

HUMAN USES

Major Creek Trail/Trailhead

Major Creek is the only undeveloped canyon in the NSA managed by the FS; it is one of the few, if not only riparian corridors from the Columbia to the highlands. Campgrounds, trails for horses, hikers and mountain bikes are not compatible with wildlife and would disrupt their migration. The Summerhill site and Major Creek canyons are important habitat for bald eagles and western gray squirrels.

Response: The Forest Service has dropped proposals to develop any trail, trailhead or campground facilities in the Major Creek canyons. Reasons include concerns for fragmenting wildlife habitat, construction and maintenance difficulty in *steep terrain, cost, and lack of demonstrated demand. The Major Creek / Summerhill proposals would be deleted from the NSA Management Plan at the next stage of plan revision.*

Mountain Bikes

- The FS should ban mountain bikes. They may not have impacts if kept to the Atwood Road, but FS won't be able to keep mountain bikes on the road. They'll create a lot of damage off road.

- I don't like being run off the path by a mountain biker.

- Mountain bikers say it's too rocky to get off the road. To get bikers to go slow for hikers, put boulders at trail junctions; make it uphill only. .

Response: Mountain bikes would be pennitted only on the Atwood Road in *the Catherine Creek Natural Area. To reduce user conflicts, the following guidelines will be considered: uphill only traffic, obstacles to slow bikers, seasonal restrictions. To ensure mountain bikes stay on the Atwood Road, the Forest Service will periodically monitor the area to detennine if mountain bikes are travelling off the Atwood Road and creating erosion, rutting or multiple trails. If such damage occurs, the Forest Service will first post warning signs and work with mountain bikes groups to stop unregulated mountain bike use. If resource damage persists, the Forest Service will close the entire Catherine Creek area to mountain bikes. See monitoring program for more infonnarion.*

Horses enable disabled and elderly to see area. What study says horses spread noxious weeds? Major Creek trail relegates horses to area with no arch, no vistas, few wildflowers and umpteen miles up a windy road to get there.

Response: There are two conflicts with horse use in *the Catherine Creek area. The first* is *resource threats, and the second is recreation conflicts. First, the Forest Service is concerned that horses may spread noxious weeds. The area is surrounded by noxious weeds, making the risk of spread into Catherine Creek greater than* in *the past. Noxious weeds are beginning to creep into the Catherine Creek Natural Area. The Catherine Creek area is too important botanically to risk this exposure to noxious weeds. Second, parking is limited to* 25 *spaces. It may be difficult to fit* 25 *vehicle spaces south of road 1230 and meet visual quality guidelines. The Forest Service is trying to create a highly social, educational, interpretive experience south of road 1230 and does not think horse trailers, and horses fit into this concept. Even if horses were allowed on the Atwood Road, it would result* in *only a* 3 *mile one-way trail and the FS does not believe the demand for such a short trail would warrant construction of horse facilities. Since the Forest Service has dropped the Major Creek trail, horses would be essentially excluded from the planning area. However, the FS is planning the* 31 *mile Klickitat Rails-ta-Trails, located only afew miles east of Catherine Creek. This project has potential for a multiple use trail which includes horses. We encourage horse users to become involved* in *this planning effort.*

- Not wise to combine horses and mountain bikes on the same trail (Major Creek loop trail). *Response: The Forest Service has dropped this trail altogether.*

Hiking/ Foot Trails

-The western loop trail should be eliminated because it goes through springtime wet areas.

Response: An existing road leads people to this area, so a designated trail, designed to lessen wetland impacts and to keep the trail dry, would help keep people out of the wet areas.

-Connecting the Atwood Road to the county road system will encourage more motorized use of the area.

Response - The Forest Service proposed to pursue vacating the Atwood Road for vehicle use, but allowing mountain bike and foot traffic. The Forest Service was attempting to avoid private land conflicts by connecting the Atwood Road to the county road system. The existing road ends at a gate marked private land, and a private road. The Forest Service proposed building a short (112 to one mile) tI11i1 to connect the Atwood Road to the county road so that mountain bikers would continue to travel on the county road system. Mountain bikers could then loop back to the parking area on the county roods, or travel where they wish on the county road system. This would also reduce the temptation for mountain bikers to create their own loop, through the Natural Area, back to the parking lot. While only a trail connection is proposed, we will add a motor vehicle (motorbike) blockage to the end of this connection.

- Not practical to reduce parking after people have driven 100 miles. People will park along the road.

Response: The existing parking is not a legal parking area and creates a safety hazard for visitors. The NSA Plan puts a 25 *vehicle limit on parking lots in this area. The Forest Service will have to work with the county to manage parking along Road 1230.*

- Node 1 will bring in more people. Why not put facilities at Rowland Lake?

Response: Node 1 *is proposed to better manage the activity already occurring at Catherine Creek. It also is intended to create an attraction south of road 1230, with the purpose of lessening use north of Road 1230.*

Other Uses

- Shooting and hunting are not consistent with Natural Area values. Creates use conflicts. Eliminate target shooting.

Response: The Forest Service does not regulate hunting, but can regulate shooting for safety reasons. The Forest Service does concur that target slwoting is not consistent with the desired recreation experience or resource values of the area and would prohibit slwoting not associated with a legitimate hunting season. For safety, slwoting would be prohibited in the -node - and over all designated trails in the prefe"ed option (the Atwood Road and the foot trail loops in the lower Catherine Creek area). The Forest Service also agrees there would be a user conflict between slwoting and hiking during the heavily used wildflower season. The recreation experience of the many hikers could be diminished by the perceived threat of hearing gun-fire. The Forest Service would create a springtime -no-shootingzone (about 150 acres) around the foot trails in the lower Catherine Creek area. This seasonal closure would lessen the perception of threat by gunfire to hikers in the most heavily used areas, and would not substantially decrease the amount of area usable to spring turkey hunters.

- No dogs, not even on leash. They harass wildlife.

Response: The Forest Service will monitor dog use and potential problems it may create. If user/wildlife .conflicts emerge, the FS will consider leash requirements on trails. The Forest Service does not have much evidence of dog use off the existing well-traveled routes.

- Close area to dispersed camping and fires. They cause localized site degradation and create a fire danger.

Response: The Forest Service would create a springtime -no-camping- zone around the foot trails in the lower Catherine Creek area. Campfires are already prohibited in the fire season and will continue to be. A 20 person limit would be placed on camping groups. Groups of 12 *or more would be required to obtain a permit from the USFS, which will give us the opportunity to channel use and monitor impacts. Further restrictions could be placed if unacceptable damage does occur.*

Gro1.1P *I* User Restrictions

- The restriction to keep people on trails in sensitive areas is premature, unnecessary and would negatively impact the use of Catherine Creek for educational purposes.

- Begin now to determine to determine triggers for reducing visitor numbers. Monitor the uses, numbers, frequency of use.

Response: All users would be encouraged to stay on the trail. Groups of 25 *or more would be required to obtain a permit and to stay on the trail. Off trail use would be monitored, and other restrictions put in place if damage does occur. These could include requiring all users to stay on trail, limits on group size, permits, etc. See monitoring program for more information.*

—

Safety around the cliffs of the arch needs to be carefully addressed.

Response: The Forest Service intends to actively discourage people from climbing up through the arch. We will place signs at the bottom of the arch outlining the dangers to people and the damage to the land that is caused by people walking through the arch. The Forest Service will also ask private individuals and groups to stop publishing photos of people walking on the scree slope below the arch with captions stating "on the trail to the arch".

Natural Resources

Why don't the animal corridors include Hanson Creek?

Response: Catherine Creek and Major Creek corridors provide connectivity into other drainages. Since Hanson Creek does not, it was considered a secondary corridor. It has been added as a "secondary corridor" to the DFC map.

The feasibility of introduction of the California mountain king snake needs to be assessed.

Response: The list of wildlife species to be enhanced has been expanded to include reptiles such as the California Mountain Kingsnake.

"Road obliteration" could leave the area open to noxious weed invasion.

Response: The Forest Service concurs, and has modified the DFC to block roads to vehicular access, then let them naturally revegetate; with some seeding of native plants ifnecessary.

Leave the bath-tub spring, it represents a bit of history.

Response: We will leave the bath-tub, but try to make the spring source around the bathtub function more like a natural spring.

Burying Klickitat PUD powerline may result in noxious weed invasions, unless moved to road ROW.

Response: The DFC has been clarified to state that the Forest Service would encourage the PUD line be moved to an existing road right-of-way.

Does "mechanical thinning" mean logging and timber extraction? Cutting trees older than 15 years of age would not be a natural practice. There is no need to bring in heavy equipment to do a job that human/volunteer labor can do with less disruption and less soil compaction. Any thinning should require that NO commercial timber harvesting be done. The emphasis should not be on taking commercially harvestable timber anyway, it should be on thinning out the understory of encroaching fIrs.

Response: Any thinning would likely be of small, understory trees. Commercial forest practices are prohibited in SMA open space, so any thinning must be done for resource enhancement reasons, and not commercial harvest.

Removal of conifers "encroaching" on oak area sounds like logging and would actually reverse the natural process of a pre-European situation. Oaks are slow growing and tend to be in areas that do not support the faster growing conifers. The only way the natural balance between oaks and conifers could be upset is when conifers have been hand planted in oak areas, something we do not believe occurred often in these areas.

Response: Under pre-European conditions, fire was a major disturbance force occurring once every 5 - J 0 years. Fire prevented conifers from becoming established in oak dominated communities. As a result of fire suppression, conifers have invaded the oak communities and are shading out many oaks. Limited thinning or prescribed fire would be required if the oaks are to remain a dominant component of these communities.

Would the "large woody debris" to be put in Major Creek come from the conifer forest next to the creek? This sounds like cutting of large conifers, and we do not see the need beyond what nature is providing. A few non conifer trees along the creek were properly chosen and felled into the creek would accomplish the goal intended.

Response: The riparian area was logged years ago. As a consequence, there is little large woo_ debris in the creek, and few large trees next to the creek. It may take many years for trees to grow large enough to naturally contribute large woo_ debris to the creek. Once trees are large enough in the riparian corridor, the Forest Service would not continue to add logs to the creek. The lower reach of Major Creek supports salmon and steelhead and is the portion of the stream in the greatest need of restoration. Restoration of this segment is the highestflSh enhancement priority to help restore salmon and steelhead in the Columbia Basin. When undertakingfisheries habitat improvement, any suitable down trees would be used If there are none, conifers up to 24" may be taken from up slope of the creek. Non-conifer trees are likely to be oak, which we don't desire to cut to use for fisheries enhancement. Alder and maple deteriorate too rapidly in the stream to justify the cost of putting them in.

,**NEXT STEPS**

The Forest Service intends to immediately begin the environmental analysis process for the trails and trailhead in the Catherine Creek area. We will utilize the extensive public involvement generated by the . open space planning effort as scoping for the trail and trailhead. Your input is being sought now via this newsletter concerning site specific aspects of the trails and trailhead. We will shortly distribute trail alternatives to this mailing list. Project manager for the trail and trailhead project will be Art Guertin. Duffy Dufresne will lead the trail layout. Virginia Kelly will remain involved as liaison between the open space plan and the site specific proposals. We anticipate some actual trail construction work in fiscal year 1996.

The Forest Service plans to initiate a site specific noxious weed control strategy and environmental assessment in fall/winter 1995. Again, we will utilize the extensive public involvement generated by the open space planning effort as sc6ping for the noxious weed control plan. Please forward any additional comments to us for use in this effort. A project manager has not yet been identified; Virginia Kelly will remain the contact until a project manager is selected. This open space plan mailing list will also be used for the noxious weed plan. We do hope to complete some noxious weed control work in fiscal year 1996 in the Catherine Creek area.

For more information, or to have names added or deleted from the mailing list, contact Virginia Kelly, Planning Team Leader at the National Scenic Area office (503) 386-2333. Please address site specific comments regarding the trails and trailhead to Art Guertin or Virginia Kelly. Please address site specific comments regarding the noxious weed plan to Virginia Kelly.

Thank you all for your participation in the Catherine Creek / Major Creek Open Space plan!