I. ANALYSIS AREA CHARACTERIZATION

I. A. Location and Description

Wall Creek watershed, located near the town of Monument, Oregon, is a 200 square mile watershed in the North Fork of the John Day River (NFJD) subbasin, and comprises approximately 8 percent of the land base in the North Fork John Day River system. The watershed is located in the north-central portion of the basin, between Madison Butte, on the divide with Willow Creek to the north, and the town of Monument, Oregon, on the North Fork of the John Day River, to the south (Figure 1). The confluence of Wall Creek is 22.5 stream miles upstream from the confluence of the North Fork with the main John Day River. (Figure 1a & 1b)

Table 1. Wall Analysis Area - Ownership

County	National Forest		BLM		Private		Total	
	Acreage	%	Acreage	%	Acreage	%	Acreage	%
Grant	41,860	44.0	1,640	100	21,800	69.6	65,300	51.0
Morrow	47,250	49.7	0	0	9,500	30.4	56,750	44.3
Wheeler	6,080	6.3	0	0	0	0	6,000	4.7
Total	95,190	100.0	1,640	100	31,300	100	128,050	100

Of the 24 percent of the watershed that is not in Federal ownership, more than 60 percent of this private land occurs at low elevation in the southeast area of the watershed. This area, near Monument, Oregon, includes minor amounts of agriculture lands, but the majority is steep, rocky, grass/shrubland used primarily for grazing. One-third of the private land is in the northwest portion of the watershed at relatively high elevation. The primary uses in this area are timber and grazing.

Wall Creek arises at an elevation of 4,600 feet and flows east to south to the confluence with the NFJD River, at an elevation of 2,060 feet. Major streams draining Wall Creek include Big Wall, Wilson, Little Wall, Skookum, and Swale Creeks. The Wall Creek watershed is divided into 16 subwatersheds which fall into three main tributary systems (NFS watersheds), Main Wall (24); Little Wall (25); and Skookum (26) (Figure 2).

The National Forest acreage within the Wall Ecosystem Analysis Area is approximately 95,190 acres, which is 45 percent of the Heppner Ranger District and 7 percent of the Umatilla National Forest.

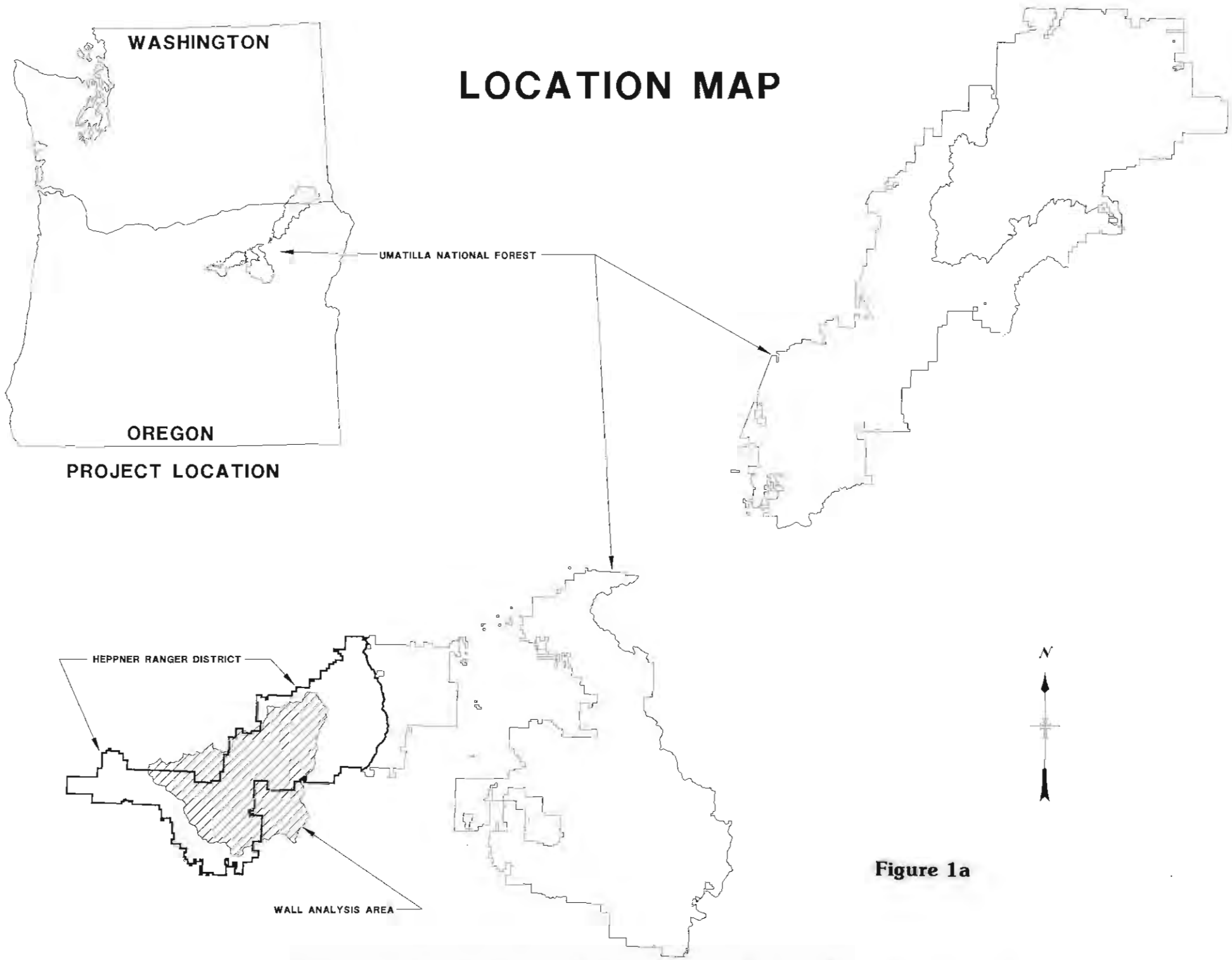
LOCATION MAP
WASHINGTON
OREGON
PROJECT LOCATION
UMATILLA NATIONAL FOREST
HEPPNER RANGER DISTRICT
WALL ANALYSIS AREA
N

Figure 1a

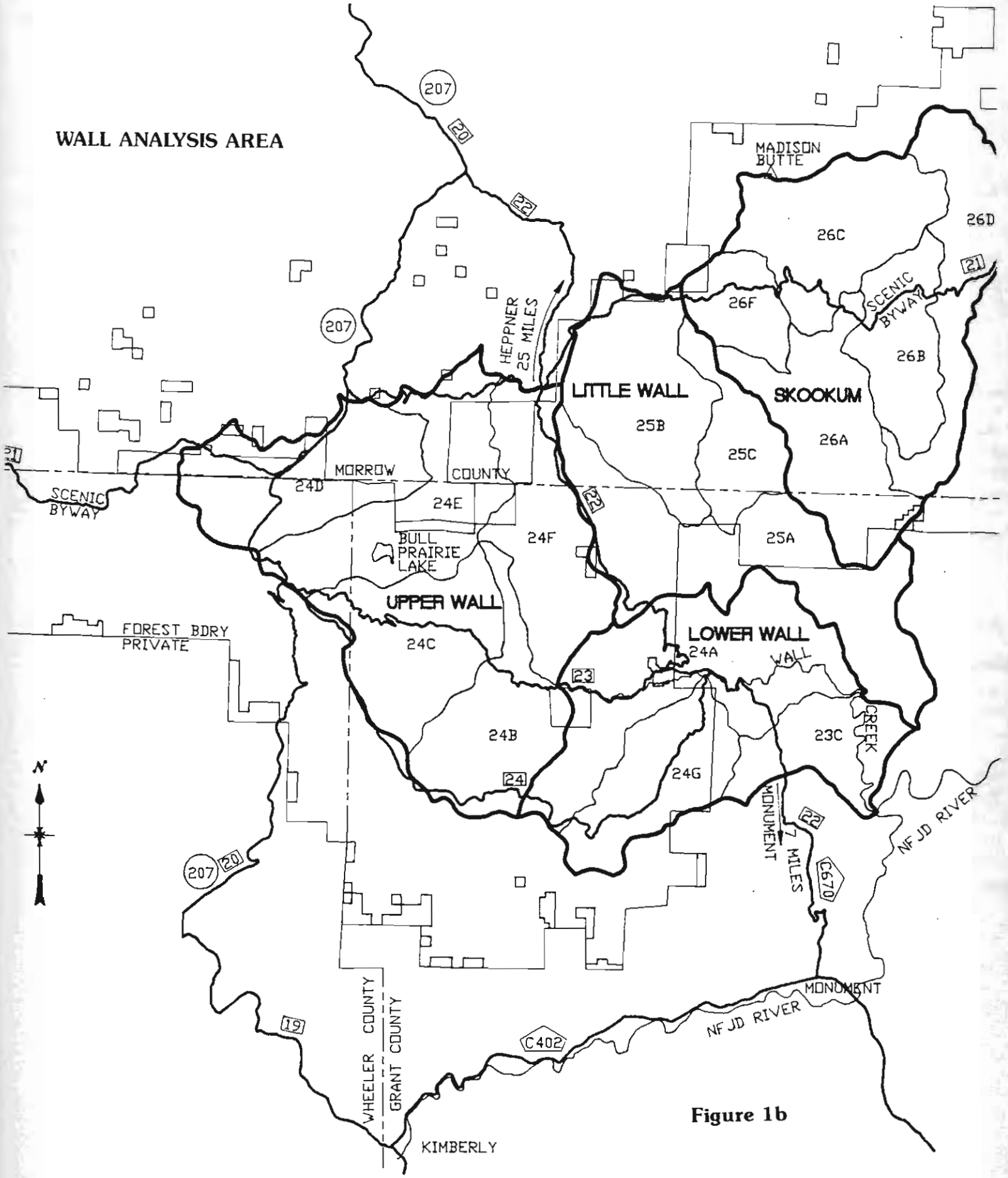
WALL ANALYSIS AREA
207
20
22
MADISON BUTTE
26C
26D
21
SCENIC BYWAY
26F
26B
HEPPNER 25 MILES
LITTLE WALL
25B
SKOOKUM
26A
25C
MORROW
COUNTY
24D
24E
24F
25A
BULL PRAIRIE LAKE
UPPER WALL
LOWER WALL
24A
WALL
CREEK
FOREST BDRY PRIVATE
24C
23
24B
24G
23C
N
MONUMENT
7 MILES
C670
NF JD RIVER
WHEELER COUNTY
GRANT COUNTY
19
C402
KIMBERLY

Figure 1b

I. B. Physical

Geology, Geomorphology, topography

Wall Creek is located in the southwest part of the Blue Mountains Section of the Middle Rocky Mountains Steppe Province (National Hierarchical Framework of Ecological Units-USDA Forest Service, 1994). Wall Creek is on an east-west trending "arm" of the Blue Mountains (part of the Blue Mountain anticline), on an uplifted and tilted basalt plateau. Dominant geology is Miocene basalt with areas of Miocene tuffs (Picture Gorge basalt and John Day formation) overlain by Mazama ash.

The landscape setting is characterized by uplifted, moderately dissected plateaus with gently sloping uplands, steep escarpments, canyons, and depositional lands consisting of alluvial landforms in valley bottoms and along stream terraces. Elevations range from 2,060 feet at the confluence to 5,707 feet at Madison Butte.

Climate and Hydrology

Wall Creek, has an interior, continental climate controlled both by its regional setting and the orientation of the main ridge. The climate is characterized by generally low precipitation intensity, low relative humidity, rapid evaporation, many clear days, and a wide range in temperatures. The average minimum January temperature for the town of Monument is 21 degrees Fahrenheit (°F), and average maximum temperature for July is 90°F.

Annual precipitation in Wall Creek ranges from 13 inches in the lower elevations near the North Fork John Day River, to 30 inches in the highest elevations in the northeastern part of the watershed. Average for the watershed is about 23 inches. The distribution of monthly precipitation for Madison Butte and Monument shows relatively low variability throughout the year. Precipitation maximums occur in early and late winter, and minimums during the summer months.

Precipitation results from winter storms which are generally wide-area frontal systems with low precipitation intensity, and long duration. Isolated, higher intensity summer convective storms also occur, in response to the heating of the land surface and topographic effects.

Variability of runoff within Wall Creek occurs as a result of watershed characteristics, climatic conditions, and management activities. Lower elevation subwatersheds are rain-dominated with early-season runoff, compared to higher elevation subwatersheds which retain snow into early spring and produce a small spring snowmelt "peak". Consequently, peak flows in the Wall watershed are a "mixed bag". The largest runoff events are winter rain-on-snow with above freezing air temperatures and above-average snowpack. These conditions existed in the winters of 1964 and 1974 and led to region-wide, record flooding which has been documented in numerous reports.

Stream Network

The following table compares the miles of stream by class in the Wall Creek Analysis Area to totals for the Umatilla National Forest. Due to the drier conditions compared to the Umatilla Forest overall, there are proportionately more miles of intermittent streams in the Wall Creek system.

Table 2. Stream Miles by Class - Wall Creek compared to National Forest

Class	Wall Creek **		Umatilla NF	
	Miles	Percent	Miles	Percent
I	96.3	12.9	1037.3	10.5
II	10.5	1.4	405.3	4.1
III	76.9	10.3	2382.4	24.2
IV	564.2*	75.4	6040.0	61.2
Total	747.9	100.0	9865.0	100.0

* Corrected intermittent miles from field sampling

** Miles of stream within National Forest boundary.

Total miles of stream and estimated acres in Riparian Habitat Conservation Areas (RHCA), excluding bogs, seeps, and springs, are reasonable estimates for planning purposes. Assuming average widths for stream classes, approximately 18 percent of the Wall watershed would be managed in RHCA's. (See stream class map, Section VII. N., Figure 5.)

I. C. Biological

Wall Creek is situated in the John Day River basin and is tributary to the North Fork John Day River subbasin. The John Day River basin supports the largest remaining wild stock of Spring Chinook Salmon (*Onchorhynchus tschawytscha*) in the Columbia Basin, and the North Fork John Day River and its tributaries account for about 70 percent of the Salmon production in the subbasin. The John Day River basin once supported substantial runs of both spring and fall chinook salmon and summer steelhead. Fall chinook now appear extinct and spring chinook runs have declined to between 2,000 and 5,000 fish. Recent steelhead runs have ranged from 15,000 to 40,000 fish.

The dominant vegetative condition of the landscape is conifer forest. Only 12 percent of the National Forest portion of the watershed is classified as non-forest; this includes steppe, meadow, and riverine vegetation types. Insect damage, grazing, erosion, timber harvest, and suppression of wildfires have been the dominant processes affecting the landscape during the 20th Century.

The Wall watershed includes some subwatersheds with the potential to support large stand replacement wildfires. Two of the watersheds are currently at high risk for a large fire and also pose particularly difficult situations for management. These are the Swale and Alder/Upper Skookum subwatersheds. Several other subwatersheds also have potential for large fires due to the development of grand fir into stands that were historically dominated by ponderosa pine.

I. D. Human Activities - Current & Historic

Native Americans:

Review of prehistoric sites indicates that the original Americans used sites within the Wall Analysis Area as early as 9,000 years ago. Two known summer encampments were used for hunting, fishing, root digging and food gathering by the Cayuse, Umatilla, Warm Springs, and Columbia River Indians. Treaty rights dating back to 1855 for the Confederated Tribes of Warm Springs Indian Reservation and Confederated Tribes of the Umatilla Indian Reservation for these same uses exist and are exercised today. In 1907, Ericksen reported that large game was "not at all abundant . . ." probably due to the annual hunt of Warm Springs and Umatilla Indians who come into the country with large bands of horses."

Native American landscape burning to enhance hunting, horse grazing, and food gathering opportunities has been well documented in the West and the Blue Mountains. Although no specific references to such land management practices were found for the Wall Analysis Area, description of the forest vegetation in the lower two-thirds of the analysis area by early Forest Service investigators and the 1937 Forest vegetation data both indicate frequent low intensity fires were common place prior to the 1860's. It seems likely that this open park-like condition was at least in part due to ignitions by Native Americans.

Early Euro-Americans:

By the 1870's, immigrants to western Oregon who had earlier passed through Morrow County began returning to what was then western Umatilla County. Many settlers had tried the gold fields of Canyon Creek, near John Day, and finding only limited success, began looking for home sites. The primary economy of the area at this time revolved around livestock, mostly sheep. As Giles reported, "the 1870's were years of growth for Umatilla County which included Morrow . . . the population increased from 2,916 to 9,614. By 1880 there were 28,588 cattle in Umatilla County. Sheep had increased from 29,960 to 291,477" (a ten fold increase in 10 years).

The development of the railroad to Heppner in 1888 signified another big change in the economy of the County. The Wall Creek area had already served as an important route of commerce between Grant County produce and markets in Idaho and the Willamette Valley. Use of the Heppner-Monument wagon road, along the current route of Forest Road 22 increased substantially during the 1880s. By 1903, it was still described as, "one of the main arteries of trade with interior points, and a large amount of freight, including the wool clip, is hauled over it." (Langille) As Giles described it, "the Monument Road was Heppner's lifeline, its contact with the great basin of the John Day, that was one of the most productive areas of the state with its flocks of sheep and herds of cattle providing certain wealth every year . . . the route wasn't overly used for hauling by wagon. Stock was trailed over it, bands of wethers going to market or Montana or Colorado for a summer . . . Cattle were trailed over the road, taking time to eat down the grass that grew on the south slopes . . ."

Settlements within the Federal Reserve portion of the watersheds were few by 1903. Langille reported, "Many homesteads have been located in different parts of the reserve, but they were taken solely to secure rights to water and usually small natural meadows along the streams, which are used for cattle ranges. Backed by a homestead claim, the cattleman commands respect and recognition from the nomadic sheep men, and for this purpose all of these claims were filed upon, though

apparently no attempt has been made to comply with the homestead law. My observations warrant the assertion that each and all of these claims could be canceled for noncompliance with the terms of the law."

Langille further reported, "During the fall of 1902 professional timberland locators 'discovered' the timber bodies within this area, and industriously resurveyed the lines around the most continuous timber belts and located scores of patriots upon the lands for a consideration of $100 per location. . . Filings began to pour into the local Land Office, and the rush was on, but fortunately my request for the withdrawal was acted upon promptly and further entries were debarred in time to protect the remaining tract, much to the disappointment of the professionals."

More Recent Uses:

Sheep grazing remained the primary use of the Wall Analysis Area until the 1930s. Earlier disputes between cattle and sheep stockmen peaked in the first decade of the 20th century. One of the first administrative acts upon the newly established Heppner Forest Reserve was to develop agreement on splitting the range for use between sheep and cattle. A 1917 map shows the Hardman C&H (cattle & horse) allotment designated in the Three Trough, Upper Little Wall Subwatersheds and the Tamarack Monument C&H allotment lying west of the Big Wall Creek SWS with only the Little Wilson Creek/Indian Creek area shown within the Wall Analysis Area. The area in between as well as the Skookum, Alder, and Swale creek areas was left for sheep grazing. This division of sheep and cattle is consistent with recommendations by Ericksen in 1907.

Sheep grazing on the Swale Creek allotment ceased in 1963. The Tupper Sheep allotment (Little Wall Creek) ceased in 1971. Although sheep were not permitted within the current Hardman and Tamarack Monument allotments after the 1930s, some sheep grazing was known to occur into the 1950s.

Timber harvest first began in earnest with the establishment of a long-term (1945-62) timber sale contract with Kinzua Pine Mills Company of 170 MMBF of ponderosa pine with the stipulation that "an average of not more than 12.5 MMBF of pine will be cut per year in any 10-year period" as reported by Jorgensen in 1948. This contract covered the "Heppner Working Circle", about 40 percent of which is within the Wall Analysis Area. Jorgensen also reported in 1948 that, "A summary of past cutting within the working circle includes: 32.3 MMBF of ponderosa pine and 4.1 MMBF of associated species had been removed from the Lonerock (nearest the old Kinzua Mill site), Winlock, and Wall Creek blocks."

From the 1960s through the 1980s, average annual timber harvest on the Heppner District was estimated to be approximately 9 MMBF of ponderosa pine and 27 MMBF of total timber volume. Approximately 45 percent of this volume was harvested from the Wall Analysis Area (about 12 MMBF/year all species). Most of the harvest prior to the 1970s occurred via selective harvest methods. Practices such as clearcutting were used during pine beetle salvage in the early 1970s. Other than that, selective harvest was common into the mid 1980s. The Kinzua Mill in Heppner is the closest to the Wall area, although demand for wood products from the Wall area is likely from mills in Long Creek and Pilot Rock as well as chip material to be barged from Boardman. **The Umatilla Forest Plan projected annual timber output is estimated at 7 MMBF from the Wall Analysis Area, although considerable question exists as to the long-term sustainable timber harvest level.**

Recreation activities in the Wall area since before the turn of the century included hunting, fishing, and firewood cutting for residents of Monument (Grant Co.) and Morrow County. The construction of Bull Prairie reservoir in 1962 established the most notable recreation site in the analysis area. Approximately 16,000 recreation visitor days are currently recorded annually at Bull Prairie including camping, fishing, sightseeing and horse or bicycle riding. The Lake is stocked with fish by Oregon Department of Fish and Wildlife (ODF&W) three to four times a year. The Bull Prairie campground, constructed in the 1960s, is the only developed campground in the Wall area and includes 27 sites.

Hunting brings the most recreationists to the Wall area each fall when most of the 57 high use and 38 low use dispersed recreation sites are occupied. A large number of these hunters are from urban Oregon areas and some from other states.

Summer use of the Alder, Skookum, Copple Butte trails for horse back riding and some hiking is increasing in popularity. Interestingly, this trail location along the northeast boundary of Wall Analysis Area was recommended by Ericksen in his 1907 report as a combination fireline, main access trail connection (east to west) and telephone line. He noted that travelers on their way to Ukiah had to go well south into open pine stands due to the heavy build up of dead and down fir and lodgepole pine in this area. In total, there are nearly 20 miles of developed trails for horse back and bike riding and hiking in the Wall area.

Winter recreation use involves snowmobiling on groomed trails along Roads 2107, 21, and 2039. These are also designated winter recreation routes through big game winter range in the Moreland Canyon and Sunflower Flat area. These and other adjustments to trail and road use were made in 1992 with the decision to implement the Heppner RD Access and Travel Management Plan.

Grazing within portions of Wall Analysis Area has undergone considerable study and change over the past few years. Adjustments in livestock numbers have been made through permitted Annual Operating Plans. Most recently, a decision has been made on the Tamarack Monument Allotment Management Plan (18,560 acres of which is in the Wall Analysis Area) adjusting AUMs to 1,446 from the 1980 AMP level of 3,777. By comparison, in 1915, livestock use was at 3.4 acres/AUM. In the 1920s to 1980s, it was approximately 10 ac./AUM. The recent decision established a rate of approximately 27.5 ac./AUM.

Analysis of the Hardman Allotment, 20,480 acres of which is on National Forest land within the Wall Analysis Area, is ongoing with a decision on the AMP expected within a year. Most of the remaining acres of the Wall Analysis Area falls within the Swale (20,630 ac.) and Little Wall (32,760 ac.) allotments. Update of AMPs for these allotments was scheduled according to the Umatilla Forest Plan for 1992 and 1994, but analysis has not yet been initiated and new AMPs are not expected in the near future.

Forest Plan. The most common Forest Plan land allocation within the Wall Analysis Area is E1, "timber and forage." The management goal for this allocation which represents 43 percent of the National Forest in the area is to, "manage forest lands to emphasize production of wood fiber (timber) and encourage production of forage." Big Game Winter Range (C3) is second in acreage at 22 percent. The goal for this land allocation is to, "manage big game winter range to provide high levels of potential habitat effectiveness and high quality forage for big games species." Table 3 displays the array of management areas within the Wall Analysis Area.

Table 3. Umatilla Forest Plan Management Areas within the Wall Ecosystem Analysis Area.

Management Area	Code	Acres	%
Viewshed 1	A3	670	0.7
Viewshed 2	A4	1,269	1.3
Developed Recreation	A6	210	0.2
Dedicated Old Growth	C1	3,750	3.7
Managed Old Growth	C2	80	0.1
Big Game Winter Range	C3	22,380	22.1
Wildlife Habitat	C4	10,190	10.1
Riparian and Wildlife	C5	3,430	3.4
Grass-tree Mosaic	C8	5,620	5.5
Timber and Forage	E1	43,930	43.3
Timber and Big Game	E2	3,570	3.5