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North Fork Malheur

Scenic River

Management Plan

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North Fork Malheur Scenic River

Management Plan

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NORTH FORK MALHEUR SCENIC RIVER MANAGEMENT PLAN

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MANAGEMENT AREA 22A (7,034 acres) NORTH FORK MALHEUR SCENIC RIVER

INTRODUCTION

The Wild and Scenic Rivers System was established by Congress (P.L. 90-542) in 1968 to provide protection for outstanding rivers nationwide. Rivers designated by the Wild and Scenic Rivers Act are free-flowing and possess at least one outstandingly remarkable value.

Rivers designated under the Act are classified as wild, scenic, or recreational, depending upon the level of development of the river and condition of adjacent lands. Wild rivers are defined as rivers free of impoundments and generally inaccessible except by trail, with primitive shorelines and unpolluted waters. Scenic rivers are also defined as rivers free of impoundments, with shorelines still largely primitive and undeveloped, but accessible in places by roads.

Forty rivers in the State of Oregon were added to the Wild and Scenic River System in 1988 with the passage of the Omnibus Oregon Wild and Scenic Rivers Act of 1988 (P.L. 100-557). Twenty-three miles of the North Fork Malheur River were designated as scenic river. The Act specified that a comprehensive management plan be prepared for each river included in the Omnibus Oregon Act, hence this management plan. This management plan replaces the management direction in the Malheur National Forest Land and Resource Management Plan (LRMP) for the North Fork Malheur River (Management Area 22, Wild and Scenic River).

1. Description

The North Fork Malheur Scenic River is completely on National Forest Land. The designated river is 22.9 miles long. See maps in Appendix E, the North Fork Malheur Scenic River Environmental Assessment, pages I-2, I-9, and I-10.

The management area for this river is defined by a river corridor boundary of varying distances from the river. This boundary was established in 1990. There are 7,034 acres within this corridor. The river corridor encompasses 1,541 acres in Baker County and 5,493 acres in Grant County. The lands within the corridor are considered entirely within one management area of the Forest, Management Area 22A. Overlap of management areas is inevitable. For instance, the corridor contains a developed campground, Management Area 12, and the river shorelines are included within Management Area 3A, Non-Anadromous Riparian Areas. For more information, see the description of Management Area Direction, p. IV-46 of the LRMP.

The outstandingly remarkable values for this river are scenery, geology, wildlife habitat, and fisheries. These values were identified by Congress and/or confirmed through a resource assessment process. A copy of the resource assessment is in Appendix D.

The river corridor is generally characterized by a rather broad valley carved by glacial activity in the upstream northern half, and by a rugged and steep canyon ranging from about 250 to 750 feet in depth to the south. The canyon geology is evident in the various rock outcrops, talus slopes, and cliffs created by erosion as the river cut through many layers of volcanic material, the Strawberry Formation, deposited between 12 and 15 million years ago. These geologic formations contribute significantly to the scenic diversity of the landscape.

The scenery of the river corridor is composed of combinations of water, landform, variety and color of vegetation, and interesting old-growth stands of trees. For the

most part, evidence of man's presence within the canyon is moderate in the northern half, and very limited in the southern half. This is due to the more easily accessed terrain in the north, and the difficult terrain and steep canyon setting in the south. Scenic vistas from the canyon rims in the south and views up and down canyon from the river throughout the corridor are generally pleasing, sometimes spectacular.

Wildlife habitat of the corridor is unique and important because of relatively undisturbed conditions and high quality habitat components. It is also important because of its location, providing connectivity between the Blue Mountains and Great Basin physiographic provinces, and between adjacent lands above the canyon rims.

The historic value of the river corridor centers around early grazing practices and transportation routes across the canyon which occurred there from the mid-1800s to the early 1900s. Remains of two early military/trade routes cross the canyon at Crane Creek Crossing. Other examples of early river corridor use include portions of old trails and Forest Service telephone lines and a "cow camp."

Development of the corridor has been a gradual process. It was not until the 1960s that surfaced-road access was developed. Even now, access to the river and canyon rim in the southern portion of the corridor is by primitive and low standard roads.

Recreation, in the forms of camping, fishing, hiking, bike riding, and hunting are increasingly popular within the corridor.

The river is an important producer of native fish populations, and it provides a significant recreational trout fishery. A limited stocking program managed by the Oregon Department of Fish and Wildlife supplements the recreational fishery at certain points of high recreation use.

2. Goals

Protect and enhance the outstandingly remarkable scenic, fisheries, geologic, and wildlife habitat values of the river corridor. Preserve the free-flowing conditions of the river. Provide facilities for recreation use and access which do not detract from the recreation opportunity settings provided. Provide for improvements in water quality and native fish habitat. Use the corridor for interpreting area history and natural history to visitors.

3. DESIRED FUTURE CONDITION

The following section describes by resource area what the future river corridor should be like if the management direction contained in this management plan is implemented. It summarizes the anticipated physical changes which would result from carrying out planned management practices at two future times: at the end of 10 years, and at the end of 50 years (RPA planning horizon).

Scenery

In 10 years:
Visitors see large-diameter trees, some multi-storied forests, and grasslands bisected by the shrub-lined, clear-flowing waters of the North Fork Malheur Scenic River.

The corridor has a natural or near natural appearance. Where timber harvest has occurred, trees are in clumps, groups, or naturally spaced; skid roads and tempo-

rary roads are not evident after activities cease. Stumps have been flush-cut or cut low to the ground.

In the southern section, human created alterations in the landscape are not visually evident. Minor changes are apparent in the northern portion of the corridor, but activities are subordinate to the character of the natural landscape.

In 50 years:
Overall, the landscape is a natural-appearing mosaic of varying textures and small openings. A periodic cycle of growth and disturbance maintains stand health and vigor. Disturbance has been natural, such as wildfire and insect/disease activity, or human-caused such as timber harvest, prescribed fire, fish and wildlife projects, and recreation developments.

Ponderosa pine is the dominant overstory tree species and large-diameter pine is common throughout the river corridor. On some sites, a mixture of fir or lodgepole is dominant.

One juniper tree per acre still remains, on the average, on shrub/grassland sites despite periodic fires. The effects of burning are evident but short lived; this activity stimulates the growth of native grasses and wildflowers.

The corridor has a natural or near natural appearance. Where timber harvest has occurred above Crane Creek Crossing, trees are in clumps, groups, or naturally spaced; skid roads and temporary roads are not evident after activities. Stumps have been flush-cut or cut low to the ground.

Below Crane Creek Crossing, where harvest has not occurred, the appearance of the river corridor is dominated by large-diameter trees, some multi-storied forests, and grasslands. Because of areas of dead trees, the texture of this natural landscape appears coarse.

Ponderosa pine remains dominant but has declined in number along this portion of the corridor due to periodic fires and natural causes. These trees are gradually becoming spaced further apart; stands have more of an open park type appearance.

Fisheries and Watershed

In 10 years:
There has been a reduction in sediments, bacterial contaminants, and turbidity generated by management activities. Spawning habitat for trout populations has been maintained.

Increased streamside vegetation of grasses, grass-like plants, and hardwoods has increased both streambank stability and shading. An increase in the in-channel, large, woody debris has improved habitat diversity for resident fish, especially trout. Large pool, scour pool, and pocket pool habitat will be maintained or increased throughout the corridor.

In 50 years:
Populations of redband trout, whitefish, and all native non-game species have been maintained or increased. Bull trout are now found throughout the designated scenic

river. Water quality is high, and fish habitat is structurally diverse in this naturally functioning river and riparian system.

There has been a reduction in sediments, bacterial contaminants, and turbidity generated by management activities. Spawning habitat for trout populations has been maintained.

An increase in the in-channel, large, woody debris has improved habitat diversity for resident fish, especially trout. Below Crane Creek, an average of 23 pieces of large, woody material has increased to about 50 pieces, a 100 percent increase; from Crane Creek to Road 1370, a 50 percent increase of from 72 to 100 pieces per mile has been realized. Above this road the amount of material has remained the same, about 130 pieces per mile. Large pool habitat will have increased by the same percentages.

Increased streamside vegetation of grasses and grass-like plants and hardwoods has increased both streambank stability and shading; 90 percent of stream banks are stable, and stream surface shade along the stream margins is 90 percent of the potential. This has decreased water temperature during the low flow summer period and reduced icing during the winter. It has also improved the stability of undercut banks and produced more overhanging vegetative cover.

Irrigation and other water diversions have been eliminated or properly screened to prevent loss of fish. The amount and timing of the diversions are monitored to ensure compliance with the water right.

Wildlife

In 10 and 50 years:
Exceptional wildlife habitat is available for a great many species. Management activity within the river corridor has occurred at a lower level than on adjacent lands. It remains an area where human disturbance is the exception rather than the rule.

The corridor provides connectivity between the Great Basin and Blue Mountains physiographic provinces and is used as a major travel route by many wildlife species. This facilitates genetic dispersal which sustains these populations.

Horizontal and vertical differences in vegetative structure accommodate different habitat types and promote biological diversity. Wildlife habitat for many species has been protected and enhanced. Habitat for sensitive, proposed, threatened, or endangered species is available.

In addition to old-growth habitat allocated to Management Area 13 by the Forest Plan, 2,000 acres are being managed to protect or develop old-growth characteristics within the corridor. There is an average of 8 to 15 standing trees, 21 inches in diameter at breast height (DBH), and 2 to 5 large downed logs per acre. Multiple canopied stands simulate uneven-aged conditions and provide within-stand vertical diversity.

Riparian habitats approximate the natural cover and species composition potential of each site. Hardwood trees and shrubs are common, providing additional layers of canopy.

The variety of grasses, forbs, shrubs, and trees in unforested areas is representative of the potential natural community. Mountain browse species such as bitterbrush, mountain mahogany, and serviceberry are significant components on sites which can support them.

Enough habitat for 100 percent of the potential populations of cavity excavating and nesting birds is available throughout the corridor.

Where permitted by site potential, cover for big game is optimum. It includes a high proportion of satisfactory cover to marginal cover. Hiding cover is abundant, and big-game forage is available in areas where early seral conditions are present and the regeneration of trees is occurring.

Populations of wildlife are generally unchanged from the existing, but there will be some small increase in passerine birds and other riparian dependent species.

Silviculture/
Timber

Northern Segment of the Corridor Affected By the Big Cow Burn.

In 10 years:
Portions of this area have been thinned or otherwise harvested, thereby increasing vigor of the remaining trees to reduce the depredations of mountain pine beetle.

In 50 years:
On sites occupied by lodgepole pine there is a mixture of stand densities, size classes, and small openings which lend a textured appearance to the landscape. Where site conditions permit, a more diverse mixture of seral species such as western larch and Douglas-fir have become established. Though large-diameter ponderosa pine and western larch trees occupy some sites, lodgepole pine is still dominant in this portion of the corridor.

Mixed Conifer, Douglas Fir and Ponderosa Pine Associations.

In 10 years:
Above Crane Creek:
Ecological conditions are more stable than they were during the period of fire suppression. Frequent, low-intensity fires and timber harvest have controlled encroachment by shade-tolerant, climax species such as white fir. Because of bark characteristics, seral species such as ponderosa pine and western larch which flourish after underburns are common. Large-diameter ponderosa pine are more dominant in the overstory of stands within the corridor. Stands have an open, park-like appearance with pinegrass/sedge the dominant vegetation in most understories.

Below Crane Creek:
The general ecological condition is becoming more stable, and stands are growing in conditions more similar to those on sites at the advent of European settlement of this area.

In 50 years:
Above Crane Creek:
Stands in the corridor are in stable ecological conditions much like those found before the fire suppression era. Establishment of seral species such as ponderosa pine and western larch were favored by underburns. Frequent, low-intensity fires and timber harvest control encroachment by shade-tolerant, climax species such as white fir. Large-diameter ponderosa pine dominate the overstory of most stands in this portion of the corridor. These stands have an open, park-like appearance with pinegrass/sedge as the dominant vegetation in most understories.

Below Crane Creek:
Stands in this area are in more stable ecological conditions, similar to those found before fire suppression. Frequent, low-intensity fires have controlled encroachment by shade-tolerant, climax species such as white fir on some sites. Where existing stand conditions preclude the use of prescribed fire to achieve objectives due to adverse fire effects, pre-existing undisturbed conditions are maintained. The absence of timber management has resulted in the loss of some overstory and understory trees.

Range Forage Conditions

In 10 years:
Successional species are more broadly mixed; plant communities are more representative of late seral ecological communities. Overall plant vigor has increased, but forage conditions have declined in some riparian areas where forage plants are suppressed by shade from alder, willow, and dogwood, and by deposits of sediments.

Livestock grazing does not exceed Forest Plan utilization levels of 45 percent on the grasses and grass-like plants, and 40 percent on the shrubs.

In 50 years:
The mix of successional species remains broad, and late seral ecological communities are even more in evidence. Sustained production of both palatable and non-palatable species is available for grazing by livestock and dependent wildlife, and serves to reduce erosion by retaining soil on site. Riparian vegetation is in satisfactory condition and close to site potential.

Conflicts between cattle and recreationists have been significantly reduced due to better cattle management. Dusty trails, manure, and other evidence of cattle use in campsites, and direct encounters with livestock are still problems but are not as severe as in the past.

Grazing utilization meets Forest Plan standards.

Fire and Fuels

After 10 years:
Fuel loadings have been reduced. Prescribed burning has enhanced scenic values and wildlife habitat.

After 50 years:
The condition of fuels in the corridor is such that ignitions generally do not produce flames higher than 4 feet, which allows direct attack by crews. These profiles are

maintained: in stands dominated by ponderosa pine, 8-PP-4; in mixed conifer stands, 2-MC-2; and in lodgepole pine stands, 3-LP-3.

An average of 2 to 5 logs per acre, at least 12 feet long and 10 inches in diameter at the small end, have been left on the ground and contribute to wildlife habitat. The fuel profiles listed above include this material.

There are less than 6 tons/acre of fuels within 200 feet of developed and dispersed recreation sites. When necessary, slash has been hand piled and burned to achieve this desired fuel loading.

Prescribed fire has been used to improve wildlife habitat and enhance visual quality, primarily in areas where fire has historically been part of the ecosystem. This has reduced fuel loadings and re-established the species composition which existed prior to the fire suppression era. Wildfire may play a more natural role in river corridor ecosystems.

Recreation

Roaded Natural ROS Areas (north of the northern trailhead of the North Fork Malheur River Trail and in the vicinity of Crane Creek Crossing)

In 10 and 50 years:
People are continuing to derive satisfaction from visits to a relatively remote river corridor where natural conditions have been only slightly altered by management activities. Visitors will continue to enjoy the scenic beauty of the river corridor.

North of the North Fork Malheur River Trailhead there is moderate evidence of human activities and structures. Roads and motorized vehicles are common in the area. Campsites, some heavily used, are numerous. Facilities such as Crane Creek Forest Camp and trailheads are managed for ROS semi-primitive motorized experiences. The opportunity to experience solitude by camping out of sight and sound of other parties is moderate to high except during hunting season.

North Fork Campground development provides a moderate level of comfort and convenience for visitors. Signing and public education programs enhance the experiences of visitors and provide for better resource protection. Interpretation of sites such the Big Cow Burn, historic road crossings, riparian management, and wildlife values of old growth habitats enhance visitor experiences. Management presence and regulations will be used to affect visitor behavior.

Semi-Primitive, Non-Motorized ROS Areas (south of the northern trailhead of the North Fork Malheur River Trail, except for the Crane Creek Crossing area)

In 10 and 50 years:
That portion of the corridor south of the North Fork Trailhead provides a river setting where future generations will still experience a feeling of being in an area unaffected by management activities. Scenic beauty continues to be enjoyed in natural and natural appearing settings.

Visitors encounter little evidence of other users. Topographical and vegetative screening have been considered in the placement of dispersed campsites. Opportunities for solitude and a feeling of independence and closeness to nature are high.

On-site controls and restrictions are subtle. Contact with administrators is infrequent.

The North Fork Malheur River Trail is managed for hiking, mountain bike, and horseback travel. Facilities such as toilets and horse loading ramps are constructed of native and rustic-like materials and seem to blend into the landscape.

4. Standards and Guidelines

RESOURCE ELEMENT	STANDARDS

The Forest-wide management direction included in Chapter IV, Section E of the Forest Plan, applies to this management area, except where superseded by the following standards:

FOR THE ENTIRE RIVER CORRIDOR

Roads/Trails

1. Manage roads and trails to ensure the ROS goals, objectives, and setting criteria for this management area are met. Take actions necessary to maintain an appropriate setting.
2. Bridges must be constructed in a manner ensuring a free flow of the river.
3. Close roads and trails to motorized travel when the surface would be damaged to the degree that any resulting runoff into the river would exceed sediment threshold limits.
4. Maintain existing trails to minimum standards necessary for the planned use.
5. Trails will be managed for non-motorized or motorized use. Use will be determined by the ROS class for the area of the corridor and other site-specific criteria.

Utility Corridors

6. Manage this area as an avoidance area for the location of utility corridors (telephone, electric, petroleum, and natural gas transmission lines).

Visuals

7. The visual quality objective for the entire corridor is retention; however, necessary structures and facilities may meet partial retention.
8. Use fire burn and insect and disease edges as unit boundaries to aid in creating irregular harvest and salvage unit forms and shapes.

Fisheries and Watershed

9. Fisheries and Watershed improvement projects are allowed which simulate natural processes and use native materials. "Hard" structures such as engineered weirs and bank armoring are prohibited.

10. Adopt Management Area 3A (non-anadromous riparian areas) standards and guidelines for riparian areas in the corridor unless superseded by these standards.

11. All diversions must be screened to protect fish.

Wildlife

12. Two thousand acres of old-growth habitat within the corridor will be maintained or enhanced. Although not suitable for timber management, cultural practices, including the cutting of trees, will be allowed. Wildlife and scenic value objectives will determine the site-specific cultural practice(s).

13. Habitat will be provided to meet 100 percent of the primary cavity excavating and nesting bird populations.

Fire Management

14. Because of the sensitivity of the wild and scenic river corridor, measures will be taken to minimize the effects of fire suppression activities (which include "light hand on the land" tactics). Bulldozers and other heavy equipment use should be avoided, but if deemed necessary, a District resource advisor will be assigned to prevent unnecessary damage to riparian areas and other sites deemed sensitive.

15. To reduce the amount of cutting, the use of long-line sling loads or existing openings will be encouraged instead of clearing new helispots.

16. In all cases, the appropriate suppression response as described for Management Area 22 (Wild and Scenic River) and Management Area 14 (Visual Corridor) in the Fire Management Action Plan, in addition to the above constraints, will be initiated for each start.

Timber

17. 2,155 acres of the corridor north of Crane Creek is classified as "suitable" for timber management; however, no harvest will be scheduled from these lands.

Other

18. Construction of new water supply dams, diversions, straightening, rip-rapping, and other modifications of the river will generally not be allowed. Hydroelectric power facilities, flood control dams, and levees are prohibited. Under Section 7(a) of the Wild and Scenic Rivers Act, the Forest Service must determine whether a proposed water resources project has a "direct and adverse effect on the values for which such river was established." Following the Regional guidelines, a Section 7(a) analysis will be completed for any project affecting the flow, bed, or banks of the river. The outcome of the analysis should clearly demonstrate a compelling need for the project and consistency with achieving the DFCs for it to continue.

FOR THE AREA OF THE CORRIDOR TO BE MANAGED AS *ROADED* NATURAL *ROS* (North of the northernmost trailhead of the North Fork Malheur River Trail and for the Crane Creek Forest Camp Area).

Roads/Trails

19. Prohibit motorized vehicle use off Forest System roads and trails except snowmobiles operating on snow. Exceptions for emergency or administrative use may be authorized by the District Ranger.

20. Maintain existing roads to accommodate a variety of vehicle types including passenger vehicle use; high-clearance, four-wheel, and off-road vehicles; and objectives in accordance with the Forest Road Management and Access Management Plans.

22. Construct or reconstruct trails to be consistent with management area objectives and the ROS class and to accommodate increased use, ensure public safety, and reduce environmental damage.

23. Limited temporary road construction is allowed for timber harvest.

Recreation

24. Manage recreation north of the North Fork Malheur Trail northern trailhead as roaded natural recreation. Manage recreation use to provide moderate to high incidence of contact with other groups and individuals.

25. Distribute dispersed recreation use as necessary to protect river values within the ROS classification. Use the "Limits of Acceptable Change" process to determine management actions necessary to preserve natural river environments.

Facilities

26. Facilities provided include development levels 1 through 3 campgrounds, local roads with paved, gravelled or native (dirt or rock) surface, and graveled parking lots at trailheads. Provide signing compatible with the ROS class.

Minerals

27. Provide minimum access for exploration and development of mineral resources. Allow new road construction only where a road is necessary for the next logical developmental stage of the mineral resource. Roads will be constructed to the minimum standards suitable for the proposed use and will be obliterated and rehabilitated after completion of activities.

Timber

28. Do not schedule harvests from lands suitable for timber management in this portion of the river corridor. Unscheduled harvests are allowed to meet management objectives.

FOR THE AREA OF THE CORRIDOR TO BE MANAGED AS SEMI-PRIMITIVE, *NON-MOTORIZED ROS* (South of the north trailhead of the North Fork Malheur River Trail, except for the Crane Creek Forest Camp Area).

Roads/Trails

29. No provisions for overland motorized travel will be permitted, except on Forest System roads. Rare exceptions for emergency or administrative use may be authorized by the District Ranger. Trails will be managed for foot, equestrian, and mountain bike travel. Motorized vehicles are generally prohibited.

30. Construct and reconstruct trails to the minimum level necessary to accommodate increased use, ensure public safety, and reduce environmental damage. Motorized equipment and vehicles may be authorized by the District Ranger to accomplish construction and maintenance work. Schedule this work during low-use periods. Unobtrusive trail bridges are allowed.

31. Road construction for timber harvest is prohibited.

Recreation

32. Manage recreation south of the North Fork Malheur Trail northern trailhead as semi-primitive, non-motorized recreation. Manage recreation use to provide a low incidence of contact with other groups and individuals.

33. Limit dispersed recreation and distribute use as necessary to protect river values within the ROS classification. Use the "Limits of Acceptable Change" process to determine management actions necessary to preserve natural river environments.

Facilities

34. Facilities provided include development levels 1 and 2 campgrounds, local roads with gravelled or native surface, and parking areas at trailheads. Provide signing compatible with intended use.

Minerals

35. Provide access for exploration and development of locatable and leasable mineral resources. However, allow new road construction only where a road is necessary for the next logical developmental stage of the mineral resource, and where other means of access (such as by helicopter, all-terrain vehicle, or pack animal) would be infeasible or unreasonable. Roads will be constructed to the minimum standards suitable for the proposed use and will be obliterated to the extent feasible after completion of activities.

Range

36. Livestock grazing is prohibited between Crane Creek and the Forest boundary between July 1 and September 15.

37. Livestock use of the proposed Skagway Creek trail is prohibited within the river corridor, and fences or other devices may be installed to prevent cattle from using the trail.

Timber

38. Exclude scheduled timber harvest below Crane Creek. These lands are classified as "unsuitable" for timber management. Do not schedule harvests from the lands suitable for timber management in the portion of the corridor north of Crane Creek. Unscheduled harvests are allowed in that area to meet management objectives.

5. Schedule of Management Practices

Administration costs for this scenic river are estimated to be $10,000 per year. Appendix H (Table H-1) of the Forest Plan displays information included in the budget proposal submitted for the Malheur National Forest in Fiscal Year 1992. Operation and maintenance of improvements within the river corridor (trails, trailheads, campgrounds, roads, etc.) and general administration of different functional areas (range administration, wildlife management, fire management, timber management, etc.) and overhead costs are included in that table.

The following tables lists projects identified to date which are needed to implement this river management plan. Project level analysis will need to be conducted before the decision to implement any of these proposed actions is made. Therefore, this table is not a list of targets but can be considered a list of opportunities identified to date, which is likely to be implemented during the next 10 years, pending receipt of funding.

ECOSYSTEM MANAGEMENT PROJECTS

PRIORITY	OUTPUTS	ESTIMAT-ED COSTS	PROJECT DESCRIPTION
1	300 acres	$3,000	Prescribed fire-broadcast burning.
2	300 acres	$3,000	Prescribed fire-broadcast burning.
3	300 acres	$3,000	Prescribed fire-broadcast burning.
4	20 closure devices	$11,000	Closures of primitive roads within the corridor which are not needed or in excess of standards.
5	300 acres	$2,500	Prescribed fire-broadcast burning.
6	300 acres	$2,500	Prescribed fire-broadcast burning.

RECREATION AND TRAIL PROJECTS

PRIORITY	OUTPUTS	ESTIMAT-ED COSTS	PROJECT DESCRIPTION
1	1 site	$2,000	Creighton Road/Dalles Military Road interpretive sign at Crane Creek Crossing.
2	1 trailhead	$35,000	Northern trailhead of Trail 381 construction.
3		$10,000	Crane Creek Forest Camp improvements.
4	2 1/2 miles	$37,500	Skagway Creek trail construction.
5	1 trailhead	$20,000	Skagway Creek Trailhead (Dead Horse Reservoir).
6	25 PAOTs	$100,000	Reconstruction of North Fork Campground.
7	2 1/2 miles	$35,000	Extension of Trail 381 access from Shale Rock Reservoir to Skagway Reservoir.
8	1 trailhead	$20,000	Trailhead construction at Skagway Reservoir.

FISH AND WILDLIFE PROJECTS

PRIORITY	OUTPUTS	ESTIMAT-ED COSTS	PROJECT DESCRIPTION
1	20 trees	$2,000	Trees will be placed into the river to increase the large woody debris component.
2	20 trees	$2,000	Trees will be placed into the river to increase the large woody debris component.

RANGE MANAGEMENT PROJECTS

PRIORITY	OUTPUTS	ESTIMAT-ED COSTS	PROJECT DESCRIPTION
1	1/2 mile	$4,000	Crane Creek Forest Camp enclosure fence construction.
2	13 miles	$65,000	Corridor fence construction, Ott and Spring Creek Allotments.
3	1/4 mile	$1,200	Cross fence above Crane Creek.

6. Monitoring Plan

The following is the monitoring strategy for Management Area 22A, North Fork Malheur Scenic River. The intent of a monitoring program is to ensure the resources are managed in a manner consistent with their protection (and function). This monitoring strategy identifies the key ecosystem elements to be tracked during plan implementation in order to determine if the objectives of this river management plan are satisfied. The monitoring prescribed in this plan is in addition to the extensive Forest-wide monitoring already prescribed in the Malheur National Forest Land and Resource Management Plan, of which this river management plan is an amendment.

Monitoring is defined as the repeated gathering and recording of pertinent information for comparison and evaluation of plan objectives as well as standards and guidelines. Based upon the results of this comparison and evaluation, the interdisciplinary team may recommend to the Forest Supervisor changes in management direction, amendments, or revisions to this plan which are deemed necessary.

MONITORING QUESTIONS FOR NORTH FORK MALHEUR SCENIC RIVER CORRIDOR MONITORING ITEMS

Resource (Emphasis) Area	Monitoring Question (Objectives)	Measured Action	(Probable) Methods	Unit(s) of Measure	Frequency	Data Location	Responsible Party (Data Collection/ Evaluation	Estimated Annual Cost
Scenery	1) Are scenic values being maintained in project implementation?	Visual effects of projects, as predicted	Field review of completed project	VQO criteria	Annually or as needed at project implementation	GIS database (VQO layer and flat file)	District Ranger / Recreation Staff Officer	$2000/yr
	2) Are scenic values being enhanced in river segment?	Visual quality progress towards DFC	Field review for enhancement opportunities/ photo points	Changes in visual quality over time	At 5-year intervals	GIS database (VQO layer and files)	District Ranger / Recreation Staff Officer	$2000/5 yrs
Wildlife & Scenery	1) Are old growth characteristics being maintained consistent with desired conditions?	Structural and functional vegetation composition (including: spp, density, amount, and distribution)	Old growth examination procedure (following W-W protocol?)	Plant types, tree sizes, numbers, down woody material	10 yr intervals, or as needed	GIS attribute database and 2600 files	District Ranger / F&W Staff Officer	$3000/10 yrs
Range	Is forage utilization within standards?	Amount of utilization	Allotment inspection (report) before and after livestock use	(Refer to Forest Plan)	Annually	2200 files	District Ranger/ Range Staff Officer	$5000/yr

MONITORING QUESTIONS FOR NORTH FORK MALHEUR SCENIC RIVER CORRIDOR MONITORING ITEMS (continued)

Resource (Emphasis) Area	Monitoring Question (Objectives)	Measured Action	(Probable) Methods	Unit(s) of Measure	Frequency	Data Location	Responsible Party (Data Collection/ Evaluation	Estimated Annual Cost
Fisheries & Watershed	1) How are riparian elements of DFCs changing through time?	Riparian elements of: structure, function, distribution, coverage	Kovalchick's classification system, Hankin and Reeves survey(s)	Shade (vegetation coverage), streambank stability, large woody debris, channel morphology	Every 10 years	GIS/District data files	District Ranger/ Forest Fish biologist	$10,000/yr
	2) What are water temperatures within the drainage?	Temperature changes through time	Continuously recording thermographs	Degrees F.	Annually at specified intervals with June 15 - September 15	Watershed database	District Hydrologist/ Forest Hydrologist	$1000/yr
		nt/	Mechanical sampler	-PPM, turbidity units, or opaqueness cross-check	Annually (May 1 - October 1)	District datatable	District Hydrologist/ Forest Hydrologist	$2000/ 1st 3 years $1000/ 4+ years
		rial mi- , pH acteris-	Grab samples (and analysis at contract labs)	-PPM, -pH (ionic concentration)	Annually or as needed	District PC database	District Hydrologist/ Forest Hydrologist	
		-phosphate						

No Page 15 in original

Other Wild and Scenic River Corridor Monitoring Items

1. Items discussed in this river management plan, but not discussed in the above strategy, are included in the overall 1992 Monitoring Plan and program of work for the Malheur National Forest. The 1993/1994 Monitoring Plan is currently being developed.

Wildlife	Primary cavity excavator and nesting bird habitat (dead and defective tree habitat): see Monitoring Item 12.
	Big-game habitat: see Monitoring Item 13.
	Bald eagle nesting and roosting habitat areas: see Monitoring Item 15.
Fisheries and Watershed	Native fish populations, including Bull trout and resident fish habitat: see Monitoring Item 10. (The Stink Creek sub-watershed has been selected as one of the 34 sub-watersheds on the Forest to be intensively monitored.)
Recreation	Recreation experiences, user conflicts, and resource damage: see Monitoring Items 4 and 9.

2. Monitoring items beyond the scope of the Malheur National Forest:

-Wildlife habitat effectiveness and validation monitoring, which is being coordinated at the sub-regional level (i.e., Blue Mountains physiographic zone).

-Management practices, such as the effectiveness of Best Management Practices (BMPs).

Lastly, the annual monitoring program will be contingent upon available funds. This funding will ultimately determine the monitoring program priorities and resulting information flow.

Appendix A

DECISION NOTICE

DECISION NOTICE

AND

FINDING OF NO SIGNIFICANT IMPACT

NORTH FORK MALHEUR SCENIC RIVER

ENVIRONMENTAL ASSESSMENT

And

MALHEUR NATIONAL FOREST LAND AND RESOURCE MANAGEMENT PLAN

AMENDMENT NUMBER 11

Baker and Grant Counties, Oregon
USDA Forest Service
Malheur National Forest
Prairie City Ranger District

Background

The North Fork Malheur River was designated as a scenic river in the Omnibus Oregon Wild and Scenic Rivers Act of 1988. The Wild and Scenic Rivers Act directs the Forest Service to develop a comprehensive management plan for the designated river corridor which will preserve the freeflowing character of the river, protect water quality, and provide for the protection/or enhancement of the outstandingly remarkable values contained within. Congress identified scenery and geology as the outstandingly remarkable values.

A Resource Assessment was completed in January 1992. It was determined in this assessment process that wildlife habitat and fisheries were also outstandingly remarkable values, and verified the finding by Congress that scenery and geology were outstandingly remarkable values. Therefore the outstandingly remarkable values for the North Fork Malheur River are scenic, fisheries, geologic, and wildlife habitat.

The Omnibus Oregon Wild and Scenic Rivers Act (Public Law 100-557) of October 28, 1988 designated the North Fork Malheur River, Oregon, as a National Scenic River, to be administered by the Secretary of Agriculture. The Forest Service has delineated river corridor boundaries for the North Fork Malheur Scenic River as required by the Wild and Scenic Rivers Act.

The decision on delineation of river corridor boundaries, based upon an Environmental Assessment, was signed on March 3, 1990 by John F. Butruille, Regional Forester. A subsequent appeal of this decision was withdrawn, based upon the agreement that the boundary decision would be reviewed after completion of a second Resource Assessment for the river.

Tiering

The North Fork Malheur Scenic River Environmental Assessment (EA) documents the analysis of management strategies for the river and designated corridor. The North Fork Malheur Scenic River EA is tiered to the Final Environmental Impact Statement for the Malheur National Forest 1990 Land and Resource Management Plan. I have reviewed the EA and associated documents; my decision is based upon that review.

The EA and associated documents are available for review at the Malheur National Forest Supervisor's Office, John Day, OR.

Location of the Scenic River

The North Fork Malheur Scenic River designation begins in the headwaters of the river where Forest Road 13-268 crosses the drainage and ends downstream at the Forest Boundary. The total length of the river is 22.9 miles. All the lands are National Forest Land.

The river and corridor are located in: Sections 16, 21, 27; 28, 33, and 34 of T.14 S., R. 35 1/2 E., Sections 3, 10, 11, 14, 15, 22, 23, 26, 27, 35, and 36 of T. 15 S., R. 35 1/2 E., Sections 2, 3, 11, 14, 23, 25, 26, and 36 of T. 16 S., R. 35 E., Sections 30 and 31, T. 16 S., R. 36 E., and Sections 1, 6, 7, 8, 12, 16, 17, 18, 20, and 21 of T. 17 S., R. 36 E., W.M.

Description of Alternative 5 with Modifications

The objectives of the selected alternative (Alternative 5 with modifications) are to:

1. Provide for protection and enhancement of outstandingly remarkable scenic, fisheries, geologic, and wildlife habitat values.

2. Allow continuation of livestock grazing in the river corridor and provide for some timber harvest as necessary, while achieving Visual Quality Objectives.

3. Provide for improvement of existing recreation facilities and allow current recreational experiences to continue at existing levels. Some additional campground and trail construction will be allowed to meet future demands.

4. Establish recreation as the priority use over grazing in the corridor.

5. Maintain the aesthetic values and wildlife connectivity of the river corridor.

6. Provide for long-term ecosystem sustainability while allowing for wise use of the river corridor.

Alternative 5 as modified is summarized briefly below:

Old Growth Habitat: 2,000 acres of tentatively suitable timbered lands are set aside to provide old growth scenery and wildlife habitat. These lands are classified as unsuitable for timber management due to other resource considerations. Certain activities are permitted to ensure the sustainability of these ecosystems.

Fisheries Management: Improvement projects are allowed to augment natural recovery of the river to provide better habitat for native fish populations.

Wildlife Habitat Management: Both structural and non-structural habitat improvement projects are allowed. Habitat will meet 100% of the primary cavity excavating and nesting bird populations.

Scenery Protection and Enhancement: The visual quality objective of the river corridor is retention. Fire effects are considered to be natural appearing, and prescribed fire will be managed to minimize short term effects to scenery. Necessary facilities and improvements such as trails, campgrounds, and other facilities are allowed to meet a partial retention visual quality objective.

Grazing: Livestock grazing will be allowed as specified in the term grazing permits. Grazing by wildlife and livestock will be conducted at levels which meet Forest Plan Utilization Standards. Intensive grazing management strategies will be allowed as allotment management plans are revised. Grazing downstream from Crane Creek will be limited to before July 1 and after September 15 to avoid conflicts with recreationists. New fences and water developments may be constructed along the river corridor boundary, or outside the corridor to facilitate better livestock management within the corridor and on adjacent lands, after site-specific environmental analysis.

When conflicts between recreation and livestock need resolution, recreation will take priority. Future grazing capacity in the river corridor will be as determined through the allotment management plans.

The North Fork Cow Camp may remain in the corridor, but will be brought under permit. Only uses stipulated in the permit will be allowed and the structures necessary for management of this allotment which were originally part of the 1985 special use permit will be permitted. All structures which have been constructed, but were not authorized under the 1985 permit, will be removed by September 30, 1993. The cow camp and access bridge over the North Fork Malheur River must be improved by September 30, 1994 so that facilities meet aesthetic and public safety requirements. The bridge, if reconstructed, must not interfere with free flowing river conditions. The public will have access to the land permitted for use as cow camp. Any signing of the premises must not infer that public access is restricted.

Timber Suitability and Timber Management: 2,155 acres of tentatively suitable lands north of Crane Creek will be classified as suitable for timber management. No harvest will be scheduled from these lands at this time due to other management considerations, but timber harvest may occur as necessary to meet management needs. Tentatively suitable lands south of Crane Creek will be classified as unsuitable for timber management.

Recreation Opportunity Spectrum (ROS) Class: The river corridor north of the north trailhead of the North Fork Malheur River trail will be Roaded Natural. South of this point, the ROS will be semi-primitive non-motorized, except for the Crane Creek Forest Camp area, where it will be Roaded Natural.

Recreation Facilities Development: The North Fork Campground will be reconstructed sometime in the future, as determined through a site-specific analysis. Larger capacity will be added to this site, and other improvements, which will provide a higher quality developed recreation experience and better resource protection, will be incorporated. If demand for developed recreation increases, the need for an additional campground within the river corridor or on adjacent lands may arise. This campground may be constructed in the future, after a site-specific analysis is completed.

Dispersed Campsites: An exclosure fence will be constructed around the Crane Creek Forest Camp to exclude livestock use. The existing campsites there may be improved, but additional capacity will not be provided. Access and dispersed camping sites within the corridor that are creating resource damage will either be improved or eliminated.

Trail Development: The extension of the North Fork Malheur River Trail will be allowed as far north as the 16 Road in Section 14, T. 15 S., R. 35 1/2 E., W.M. Trails which parallel the river are not allowed north of this point. Trail construction and maintenance will be determined by the ROS Class for the area.

After site-specific analysis, the existing south access trail may be extended to a better trailhead location on a higher standard road. A new recreation trail down Skagway Creek may also be constructed, with a trailhead in the vicinity of Dead Horse Reservoir. No cattle use on the trail will be allowed. These two trails may be linked together to form a loop trail if feasible.

The Prairie City District Ranger will explore the opportunities of loop trail systems within and adjacent to the river corridor. These loop trails should allow for a variety of recreational experiences and difficulty levels.

Water Quality: Water quality improvement projects are allowed which meet visual quality objectives of the area and will not affect the free flowing river conditions. State water quality standards will be met or exceeded, and Best Management Practices will be followed for any activities which have the potential for impacting water quality.

Road Management: No new permanent roads will be constructed, except as allowed under mineral entry. Temporary roads for timber harvest may be allowed after site-specific analysis, where their construction will minimize resource impacts. Improvements may be made to existing roads. Motorized travel will be limited to existing roads and designated trails.

Adjacent Forest Plan Management Areas

The National Forest System Lands adjacent to the Scenic River corridor have been reviewed for effects that management of these lands could have on

outstandingly remarkable values. In general, the existing management direction and Forest Plan standards and guidelines are adequate to protect outstandingly remarkable and other river related values.

Reasons for the Decision

Throughout the planning process many members of the public told us they liked the North Fork Malheur River the way it is. They want to see the character of the river corridor and the quality of the recreational experiences kept much the way they are now, but allow subtle improvements to existing facilities and trails.

Some members of the public are concerned about the impacts from grazing and want these impacts lessened or eliminated altogether. Many of the public want to see the old growth timbered character of the corridor maintained.

Some members of the public are concerned about the loss of timber values and the ability to deal with forest health issues if no harvesting was to take place.

Under Alternative 5, there will be no scheduled harvest south of Crane Creek. There are 1210 acres of tentatively suitable timbered land in this portion of the corridor, these are now determined to be unsuitable. This restriction of harvest will allow for the protection of scenic and wildlife habitat values without a significant reduction in timber volume production. I believe the large trees in this area are more important for their scenic and wildlife value than their timber value, and in the long run will result in the highest net public benefit. Finally, the characteristics of this canyon provide values that are unique in the context of the larger landscape.

Above Crane Creek, those tentatively suitable lands outside the old growth habitat and riparian areas are determined to be suitable for timber management. There are unique old growth and ecosystem values involved throughout the corridor. Unscheduled timber harvest above Crane Creek can provide wood fiber and timber sale receipts to the counties. There will be no harvest scheduled from these lands at this time, however some timber production will occur if necessary. Any harvest will capture some of the timber value and allow the management of resources, ensuring forest health recovery and ecosystem stability.

Under Alternative 5 , the wide range of recreational uses will be allowed to continue with minimum regulation. Alternative 5 relies on better recreation site development to provide protection for water quality and fisheries habitat. I am directing the Prairie City District Ranger to evaluate the opportunity for loop recreation trails in the corridor, and loop trails which include the corridor and lands adjacent to the river corridor for mountain bike, horseback, and hiking opportunities.

There will be no trails constructed north of the 16 Road which parallel the river, but the northern extension of the North Fork Malheur River Trail is allowed to this point. This area of the corridor has easy access from roads, and I do not believe the construction of trails would enhance recreational opportunities significantly, but would have negative impacts on fisheries and scenic values.

The construction of an additional trail segment from the south trailhead to an all-season road, and construction of a new trailhead at this junction will be allowed. A new trail in the Skagway Creek drainage to provide additional access to the North Fork Malheur River Trail, with a new trailhead near Dead Horse Reservoir, is allowed. This will be a recreation use trail only, cattle use will be prohibited. All new trails and additional recreational facilities will only be approved after site-specific environmental analysis.

Alternative 5 as modified allows for better grazing management and control of cattle through the construction of fences and range improvements and the use of intensive grazing as a management strategy. The grazing capacity of the river corridor will not change. Grazing receipts to the counties will be unaffected. Recreation will be the priority use in this management area. Grazing is restricted in the southern portion of the corridor where most conflicts with recreationists occur to periods outside the peak recreation season. Continued use of the North Fork Cow Camp by one of the grazing permittees may continue, but some of the concerns with past use and maintenance of this site are addressed. The replacement of this facility somewhere else on the allotment, outside the corridor, if the permittee prefers to abandon the site may occur. This facility will be brought under the proper permit.

Use of the river corridor as a utility corridor is prohibited. This will ensure that electronic and electric transmission lines and natural gas and other pipelines will not impact the outstandingly remarkable values of the river in the future.

The area will continue to be open to mineral exploration and development under the 1872 Mining Law. Necessary and reasonable access will be provided. I considered proposing a minerals withdrawal on the area to the Secretary of Interior in order to ensure protection of outstandingly remarkable scenic, fisheries, geologic, and wildlife habitat values. However, I decided that a withdrawal application was not in the best public interest at this time because: the mineral potential of the corridor is so low, very little minerals data exists, there is no history of mining activities in the corridor, and the expense of withdrawal to the taxpayers is so high.

Alternative 5 encourages the use of prescribed fire as a management tool to protect and enhance outstandingly remarkable values of scenery and wildlife habitat. The use of fire over time will address existing forest health concerns and help to achieve the desired condition of the river corridor.

The riparian condition improvement rate in Alternative 5 is second to only to Alternative 2. This river corridor is an appropriate place to feature rapid riparian area recovery and to demonstrate the ability to do so.

The retention visual quality objective (VQO) will allow some stand treatments while protecting the scenic values of the river corridor. The relaxation of the VQO to partial retention as described in Alternatives 3 and 4 would have allowed some short term degradation of scenic values while treating areas of the corridor. I do not feel the need exists to allow this at this time.

The preservation visual quality objective (VQO) in the southern part of the corridor as described in the unmodified Alternative 5 would unnecessarily

restrict management activities without a corresponding improvement in conditions.

The 2,000 acres of scenic and wildlife old growth habitat will continue to provide the connectivity value of the corridor. Forest Service validation monitoring underway suggests that larger blocks of old growth habitat than those currently identified in the Forest Plan may be necessary to meet old growth habitat needs for species such as the pileated woodpecker.

This alternative manages for 100 percent of the primary cavity excavating bird habitat, thus maintaining the current high diversity of populations in the corridor. This alternative does not maximize wildlife habitat enhancement, but it does provide for high levels of habitat protection. Current habitat values are of high quality and diversity.

Prohibiting new permanent road construction will protect existing high levels of scenic beauty and wildlife habitat. The current road system provides adequate access to the river corridor and to lands adjacent to the corridor.

Alternative 5 as modified balances current high wildlife habitat diversity and connectivity with the means to sustain these over time. It will also continue to provide scenic quality; through non-scheduled timber harvest, the retention visual quality objective, and prescribed fire.

I feel this is the most balanced alternative relative to all of the issues, resources, public input and provides the appropriate balance of modifications to achieve the long term protection and enhancement of outstandingly remarkable values. This alternative provides for total ecosystem management for future generations.

Amendment Made to the Forest Plan

Amendment 11 to the Malheur National Forest Plan has 7 purposes. These are listed below:

1. Removes the area within the North Fork Malheur Scenic River corridor from Management Area 22 (Wild and Scenic Rivers).

2. Provides replacement management direction for the North Fork Malheur Scenic River corridor by establishing a new Management Area 22a (Wild and Scenic Rivers-North Fork Malheur River). This replacement direction will be contained in the North Fork Malheur Scenic River Management Plan.

3. Makes the modifications to the Forest Plan and its appendices that are necessary to make the documents internally consistent with both the establishment of MA 22a and the elimination of the North Fork Malheur Scenic River corridor from MA 22. Specific references to be changed are found on the following pages of the Forest Plan: IV-5, 8, 13, 49, and 135, A-2, 4, 5, 6, and 8, B-1 and 2, E-1 and L-1.

4. Adds 2,155 acres as suitable for timber management.

5. Reduces the Forest annual Allowable Sale Quantity (ASQ) by 246 thousand board feet on an annual basis.

6. Allows for implementation of intensive grazing management (Strategy D) within the river corridor.

7. Removes from MA 13 201 acres in the northern part of the corridor inadvertently counted as MA 13 in the development of the Forest Plan and places it in MA 22a. This is part of the 875 acres of old growth habitat identified within the corridor during the development of the Forest Plan. This will allow 2,000 acres of the corridor to be managed to provide old growth habitat and old growth scenery with one desired future condition. The desired condition for the old growth habitat for this corridor is documented in the environmental assessment. It allows a high degree of protection and for future enhancement of these values. Management prescriptions to achieve the desired condition will be developed by site-specific analysis before any activities are implemented.

The Forest has a process in progress to evaluate the designated old growth network. There were 148 acres of designated old growth (stand number 339) mapped within the corridor. The removal of this 148 acres will leave only 252 acres within this stand outside the river corridor, less than the standard of a minimum of 300 acres. There is another designated old growth stand (number 345) with 53 acres mapped in the river corridor. It is large enough with the reduction to meet the minimum standard. The work in progress field validating the old growth inventory will provide the answer whether an addition to stand 339 is needed outside the river corridor.

Although the old growth habitat within the river corridor may be managed differently than the old growth in Management Area 13, the analysis indicates that the net result is an increase of 1,125 acres of old growth habitat on the Forest. This will exceed the minimum habitat requirements for old growth associated species within the vicinity of the river corridor.

To accomplish the first purpose, I am revising the description of Management Area 22 on page IV-134 and Table IV-3 of the Forest Plan to delete references to the North Fork Malheur River.

To accomplish the second purpose I am adding a new management area, Management Area 22a. I am also incorporating by reference the desired future condition for Alternative 5 described in the EA and the standards and guidelines for MA 22a listed below.

To accomplish the third purpose I am making the necessary changes to various sections of the Forest Plan which describe the North Fork Malheur Scenic River as part of Management Area 22.

To accomplish the fourth purpose I am modifying Table B-2 of the Forest Plan which describes suitable acres on the Forest.

To accomplish the fifth purpose I am modifying Table E-1 of the Forest Plan which includes ASQ contributed from Management Area 22.

To accomplish the sixth purpose I am adding the standard and guideline for intensive grazing management described below to Management Area 22a.

To accomplish the seventh purpose I am modifying the description of Management Area 13 on page IV-105 to reduce the acreage by 201 acres.

Standards and Guidelines

The Forest-wide management direction included in Chapter IV, Section E of the Forest Plan applies to this management area except where superseded by the following standards, which will also be incorporated into the North Fork Malheur Scenic River Management Plan:

Roads/Trails

1. Manage roads and trails to ensure that the ROS goals, objectives, and setting criteria for this management area are met. Take actions necessary to maintain an appropriate setting.

2. Bridges must be constructed in a manner that ensure that free flow of the river is not impacted.

3. Close roads and trails to motorized travel when the surface would be damaged to the degree that any resulting runoff into the river would exceed sediment threshold limits.

4. Maintain existing trails to minimum standards necessary for the planned use.

5. Trails will be managed for non-motorized or motorized use. Use will be determined by the ROS class for the area of the corridor and other site-specific criteria.

Utility Corridors

6. Manage this area as an avoidance area for the location of utility corridors (telephone, electric, petroleum, and natural gas transmission lines).

Visuals

7. The visual quality objective for the entire corridor is retention, however necessary structures and facilities may meet partial retention.

8. Use fire burn and insect and disease edges as unit boundaries to aid in creating irregular harvest and salvage unit forms and shapes.

Fisheries and Watershed

9. Fisheries and Watershed improvement projects are allowed which simulate natural processes and use native materials. "Hard" structures such as engineered weirs and bank armoring are prohibited.

10. Adopt Management Area 3A (Non-anadromous riparian areas) standards and guidelines for riparian areas in the corridor unless superseded by these standards.

11. All diversions must be screened to protect fish.

Wildlife

12. Old growth habitat within the corridor will be maintained or enhanced. Though not suitable for timber management, cultural practices, including the cutting of trees, will be allowed. Wildlife and scenic value objectives will determine the site-specific cultural practice(s).

Fire Management

13. Because of the sensitivity of the wild and scenic river corridor, measures will be taken to minimize the effects of fire suppression activities (which includes "light hand on the land" tactics). Bulldozers and other heavy equipment use should be avoided, but if deemed necessary, a district resource advisor will be assigned to prevent any unnecessary damage to riparian areas and other sites deemed sensitive.

14. To reduce the amount of cutting, the use of long line sling loads or existing openings will be encouraged instead of clearing new helispots.

15. In all cases, the appropriate suppression response as described for Management Area 22 (Wild and Scenic River) and Management Area 14 (Visual Corridor) in the Fire Management Action Plan, in addition to the above constraints, will be initiated for each start.

Range

16. Where intensive grazing management is allowed through the allotment management plan, utilization of forage on suitable range in satisfactory condition, will not exceed 50% in riparian areas 55% in non-riparian grassland communities and 50% in non-riparian forested and shrubland communities.

Other

17. New water supply dams and diversions are prohibited.

18. Hydroelectric power facilities are prohibited.

19. Flood control dams and levees are prohibited.

For the area of the corridor to be managed as Roaded Natural ROS (North of the north trailhead of the North Fork Malheur River Trail and for the Crane Creek Forest Camp Area).

Roads/Trails

20. Prohibit motorized vehicle use off Forest System roads and trails except snowmobiles operating on snow. Rare exceptions for emergency or administrative use may be authorized by the District Ranger.

21. Maintain existing roads to accommodate a variety of vehicle use including passenger vehicle use, high-clearance, four-wheel, and off-road vehicles in accordance with the Forest Road Management Plan.

22. Construct or reconstruct trails to be consistent with management area objectives, accommodate increased use, ensure public safety, and reduce environmental damage.

23. Limited temporary road construction is allowed for timber harvest.

Recreation

24. Manage recreation north of the North Fork Malheur Trail northern trailhead as roaded natural recreation. Manage recreation use to provide moderate to high incidence of contact with other groups and individuals.

25. Distribute dispersed recreation use as necessary to protect river values within the ROS classification. Use the "Limits of Acceptable Change" process to determine management actions necessary to preserve natural river environments.

Facilities

26. Facilities provided include development levels 1 through development level 3 campgrounds, local roads with gravelled or native (dirt or rock) surface, and parking lots at trailheads. Provide signing compatible with intended use.

Minerals

27. Provide minimum access for exploration and development of mineral resources. Allow new road construction only where a road is necessary for the next logical developmental stage of the mineral resource. Roads will be constructed to the minimum standards suitable for the proposed use, and will be obliterated and rehabilitated after completion of activities.

For the area of the corridor to be managed as Semi-Primitive, Non-Motorized ROS (South of the north trailhead of the North Fork Malheur River Trail, except for the Crane Creek Forest Camp Area).

Roads/Trails

28. No provisions for overland motorized travel will be permitted, except on Forest System roads. Rare exceptions for emergency or administrative use may be authorized by the District Ranger.

29. Construct and reconstruct trails to the minimum level necessary to accommodate increased use, ensure public safety, and reduce environmental damage. Motorized equipment and vehicles may be authorized by the District Ranger to accomplish construction and maintenance work. Schedule this work during low-use periods. Unobtrusive trail bridges are allowed.

30. Road construction for timber harvest is prohibited.

Recreation

31. Manage recreation south of the North Fork Malheur Trail northern trailhead as semi-primitive, non-motorized recreation. Manage recreation use to provide a low incidence of contact with other groups and individuals.

32. Limit dispersed recreation and distribute use as necessary to protect river values within the ROS classification. Use the "Limits of Acceptable Change" process to determine management actions necessary to preserve natural river environments.

Facilities

33. Facilities provided include development level 1 and 2 campgrounds, local roads with gravelled or native surface, and parking areas at trailheads. Provide signing compatible with intended use.

Minerals

34. Provide access for exploration and development of locatable and leaseable mineral resources. However, allow new road construction only where a road is necessary for the next logical developmental stage of the mineral resource, and where other means of access (such as by helicopter, all-terrain vehicle, or pack animal) would be infeasible or unreasonable. Roads will be constructed to the minimum standards suitable for the proposed use, and will be obliterated to the extent feasible after completion of activities.

Range

35. Livestock grazing is prohibited between Crane Creek and the Forest Boundary between July 1 and September 15.

36. Livestock use of the proposed Skagway Creek trail is prohibited within the river corridor, and fences or other devices may be installed to eliminate cattle from using the trail.

Monitoring Plan

The management program for the lands within MA 22a will include an extensive monitoring program. Items to be monitored will include :

Water Quality

Recreation Use and Experience Levels

Grazing Utilization

Range Condition

Old Growth Habitat Condition

Wildlife Habitat Condition

Scenery/Visuals Condition

Fish Habitat Condition

Riparian Vegetation Condition

Insect and Disease Levels

The monitoring items for MA 22a will be incorporated in the 1992/93 Monitoring Plan for the Forest Plan, to be developed later this year.

Public Participation Process and Activities

Public participation was an integral part of the planning process. Interested citizens, groups, local governments, and state agencies were involved and contributed to the planning process. The public was formally consulted when scoping issues and developing preliminary alternatives.

Public involvement was conducted in several ways; through news releases and radio information, public meetings, meetings with groups, and news letters.

Two briefings were held for the Grant County Court, which conducted a public meeting attended by more than 60 individuals on January 15, 1992. The Forest Service and affected range permittees met to discuss alternatives in Drewsey on January 22, 1992. A record of the discussion was kept and several letters from permittees were later received.

Alternatives Considered But Not Analyzed in Detail

The EA describes the alternatives considered but not analyzed in Detail. Some suggested alternatives were determined to be outside the scope because of the Wild and Scenic Rivers Act. Some were not responsive to one or several issues. Some were determined to be outside the scope because the Forest Service is not the responsible agency for the resource management topic.

Alternatives Considered in Detail

The river planning team developed and analyzed five alternatives in detail in the Environmental Assessment.

Alternative 1 (No Change From Existing Direction):

This alternative is the existing management direction for scenic rivers in Management Area 22 of the Forest Plan. It projects a continuation of current management within the river corridor. This alternative also provides a baseline for comparison of the other alternatives.

Alternative 2

This alternative would restrict alternatives to those which would least alter natural conditions. It responds to members of the public who requested an evaluation of low impact management..

Alternative 3

This alternative would allow for a high level of recreation and development within the corridor while producing relatively substantial levels of forage and timber.

Alternative 4

This alternative would maintain and improve ecosystem health within the river corridor while allowing recreation to continue at somewhat lower levels than today. Grazing and timber harvest would be lower than Alternatives 1 and 3.

Alternative 5

With modifications, this is the selected alternative. It provides for some grazing and timber harvest but emphasizes a balance between aesthetics and utilization of the river corridor. It was developed in response to public requests for an alternative perpetuating current levels of recreation with less grazing and timber production.

FINDING OF NO SIGNIFICANT IMPACT

Based on the analysis disclosed in the Environmental Assessment for the North Fork of the Malheur River, I find that these projects are not a major federal action that will significantly affect the quality of the human environment. Therefore, an environmental impact statement is not needed. This finding is based on consideration of impacts both beneficial and adverse for the following factors:

1. Public health and safety are minimally affected by the proposed project.

2. There will be no significant irreversible or irretrievable commitment of resources. Sufficient information is available to make a reasoned choice among alternatives based on the analysis information in the environmental assessment and other past actions of a similar nature.

3. There will be no adverse impacts to wetlands, flood plains, other riparian areas, and dedicated old growth areas.

4. No significant direct, indirect, or cumulative impacts to soil, water, wildlife resources, or other components of the human environment are anticipated.

5. The effects of this project are not highly uncertain and do not involve unique or unknown risks.

6. The effects of this project on the quality of the human environment are not highly controversial.

7. The proposed actions do not set a precedent for other projects that may be implemented to meet the goals and objectives of the Forest Plan. Activities planned in the wild and scenic river corridor will not adversely affect the environment beyond or downriver from the designated corridor.

8. Based on previous cultural resource surveys and those completed in 1989-90, cultural resource properties in this project area have been identified and recorded. The project will avoid and/or mitigate known sites. State Historic Preservation Office (SHPO) concurrence consultation has been obtained.

9. The Biological Evaluation and associated field surveys were completed in 1991. The North Fork Malheur Wild and Scenic River Management Plan direction is not expected to cause any significant adverse impacts to any threatened, endangered, or sensitive plant or animal species. Site specific biological evaluations will be done for specific projects in the corridor.

10. The proposed action will be in compliance with relevant Federal, State, and local laws, regulations, and requirements designed for the protection of the environment. The proposed action will meet state water and air quality standards.

In accordance with Executive Orders 11988 and 11990, 30 days must elapse before this decision can be implemented. The 30 day period will begin following publication of legal notice of the decision in the Blue Mountain Eagle newspaper, John Day, Oregon.

This decision is subject to appeal pursuant to 36 CFR 217. Any written Notice of Appeal of this decision must be fully consistent with 36 CFR 217.9 (Content of a Notice of Appeal) and must include the reasons for appeal. A written notice of appeal, in duplicate, must be filed with John Lowe, Regional Forester, (Reviewing Officer), USDA Forest Service, 333 SW First Avenue, P.O. Box 3623, Portland, Oregon 97208 within 45 days of the date legal notice of this decision appears in the Blue Mountain Eagle newspaper, John Day, Oregon.

For more information about the river and planning process contact: Gerrish Willis, River Planning Team Leader. For further information about the appeals process contact Glen Stein, Environmental Coordinator. Both can be contacted at the Malheur National Forest, 139 NE Dayton, John Day, Oregon 97413; (503) 575-1731

M. A. Boche

MARK A. BOCHE
Forest Supervisor

7/15/92

DATE

Appendix B

LETTER TO APPELLANTS, ONRC & PINE, CONCERNING GRAZING STRATEGIES

United States Department of Agriculture
Forest Service
Malheur National Forest
139 NE Dayton Street
John Day, OR 97845
(503) 575-1731
FAX (503) 575-2082

Reply to: 1570/1950

Date: OCT 2 6 1992

Bob Pereira
P.I.N.E.
P.O. Box 99
John Day, OR 97845

Mark Hubbard
Oregon Natural Resources Council
Western Regional Office
1161 Lincoln Street
Eugene, OR 97401

Dear Sirs:

I have reviewed the P.I.N.E. and the Oregon Natural Resources Council appeals of the North Fork Malheur River Scenic River and Malheur National Forest LRMP Amendment Number 11 decision of July 15, 1992, and the P.I.N.E. appeal of the Malheur Wild and Scenic River and Malheur National Forest LRMP Amendment Number 14 decision of August 7, 1992. Portions of these decisions allow for "intensive" grazing management as an option in these river corridors and would allow grazing utilization standards higher than currently allowed in the LRMP.

After careful review of the environmental analyses for these river management plans and for the Forest LRMP, I have concluded that additional analysis must be conducted before making this modification. I am hereby withdrawing these portions of my decisions. Existing Forest-wide grazing utilization standards will continue to be in effect for these river corridors.

If you have any questions, please contact Gerrish Willis, Wild and Scenic River Planner, at extension 356.

Sincerely,

MARK A. BOCHÉ
Forest Supervisor

Appendix C

WILD & SCENIC RIVERS ACT

WILD AND SCENIC RIVERS ACT[1]

AN Act To provide a National Wild and Scenic Rivers System, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That (a) this Act may be cited as the "Wild and Scenic Rivers Act".

(b) It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

(c) The purpose of this Act is to implement this policy by instituting a national wild and scenic river system, by designating the initial components with that system and by prescribing the methods by which and standards according to which additional components may be added to the system from time to time.

SEC. 2 (a) The national wild and scenic rivers system shall comprise rivers (i) that are authorized for inclusion therein by Act of Congress, or (ii) that are designated as wild, scenic or recreational rivers by or pursuant to an act of the legislature of the State or States through which they flow, that are to be permanently administered as wild, scenic or recreational rivers by an agency or political subdivision of the State or States concerned, that are found by the Secretary of the Interior, upon application of the Governor of the State or the Governors of the States concerned, or a person or persons thereunto duly appointed by him or them, to meet the criteria supplementary thereto as he may prescribe, and that are approved by him for inclusion in the system.... Upon receipt of an application under clause (ii) of this subsection, the Secretary shall notify the Federal Energy Regulatory Commission and publish such application in the Federal Register. Each river designated under clause (ii) shall be administered by the State or political subdivision thereof without expense to the United States other than for administration and management of federally owned lands. For purposes of the preceding sentence, amounts made available to any State or political subdivision under the Land and Water Conservation Act of 1965 or any other provision of law shall not be treated as an expense to the United States. Nothing in this subsection shall be construed to provide for the transfer to, or administration by, a State or local authority of any federally owned lands which are within the boundaries of any river included within the system under clause (ii).

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[1] *The Wild and Scenic Rivers Act (16 U.S.C. 1271-1287) consists of Public Law 90-542 (October 2, 1968) as amended. P.L. 99-590 (October 30, 1986) was the last Act that added generic amendments to the Act.*

(b) A wild, scenic or recreational river area eligible to be included in the system is a free-flowing stream and the related adjacent land area that possesses one or more of the values referred to in section 1, subsection (b) of this Act. Every wild, scenic or recreational river in its free-flowing condition, or upon restoration to this condition, shall be considered eligible for inclusion in the national wild and scenic rivers system and, if included, shall be classified, designated, administered as one of the following:

(1) Wild river areas - Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

(2) Scenic river areas - Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

(3) Recreational river areas - Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

SEC. 3 (a) The following rivers and the land adjacent thereto are hereby designated as components of the national wild and scenic rivers system:

(Designation language for individual W&S rivers)

(b) The agency charged with the administration of each component of the national wild and scenic rivers system designated by subsection (a) of this section shall, within one year from the date of designation of such component under subsection (a) (except where a different date is provided in subsection (a)) establish detailed boundaries therefor; determine which of the classes outlined in section 2, subsection (b), of this Act best fit the river or its various segments. Notice of the availability of the boundaries and classification, and of subsequent boundary amendments shall be published in the Federal Register and shall not become effective until ninety days after they have been forwarded to the President of the Senate and the Speaker of the House of Representatives.

(c) Maps of all boundaries and descriptions of the classifications of designated river segments, and subsequent boundary amendments to such boundaries, shall be available for public inspection in the offices of the administering agency in the District of Columbia and in locations convenient to the designated river.

(d) (1) For rivers designated on or after January 1, 1986, the Federal agency charged with the administration of each component on the National Wild and Scenic Rivers System shall prepare a comprehensive management plan for such river segment to provide for the protection of the river values. The plan shall address resource protection, development of lands and facilities, user capacities, and other management practices necessary or desirable to achieve the purposes of this Act. The plan shall be coordinated with and may be incorporated into resource management planning for affected adjacent Federal lands. The plan shall be prepared, after consultation with State and local governments and the interested public within three full fiscal years after the date of designation. Notice of the

completion and availability of such plans shall be published in the Federal Register.

(2) For rivers designated before January 1, 1986, all boundaries, classifications, and plans shall be reviewed for conformity within the requirements of this subsection within 10 years through regular agency planning processes.

SEC. 4 (a) The Secretary of the Interior or, where national forest lands are involved, the Secretary of Agriculture, or, in appropriate cases, the two Secretaries jointly shall study and submit to the President reports on the suitability or nonsuitability for addition to the national wild and scenic rivers system of rivers which are designated herein or hereafter by the Congress as potential additions to such system. The President shall report to the Congress his recommendations and proposals with respect to the designation of each such river or section thereof under this Act.... In conducting these studies the Secretary of the Interior and the Secretary of Agriculture shall give priority to those rivers (i) with respect to which there is the greatest likelihood of developments which, if undertaken, would render the rivers unsuitable for inclusion in the national wild and scenic rivers system, and (ii) which possess the greatest proportion of private land within their areas. Every such study and plan shall be coordinated with any water resources planning involving the same river which is being conducted pursuant to the Water Resources Planning Act (79 Stat. 244; 42 U.S.C. 1962 et seq.).

Each report, including maps and illustrations, shall show among other things the area included within the report; the characteristics which do or do not make the area a worthy addition to the system; the current status of land ownership and use in the area; the reasonably foreseeable potential uses of the land and water which would be enhanced, foreclosed, or curtailed if the area were included in the national wild and scenic rivers system; the Federal agency (which in the case of a river which is wholly or substantially within a national forest, shall be the Department of Agriculture) by which it is proposed the area, should it be added to the system, be administered; the extent to which the costs thereof, be shared by State and local agencies; and the estimated cost to the United States of acquiring necessary land and interests in land and of administering the area, should it be added to the system. Each such report shall be printed as a Senate or House document.

(b) Before submitting any such report to the President and the Congress, copies of the proposed report shall, unless it was prepared jointly by the Secretary of the Interior and the Secretary of Agriculture, be submitted by the Secretary of the Interior to the Secretary of Agriculture or by the Secretary of Agriculture to the Secretary of the Interior, as the case may be, and to the Secretary of the Army, the Chairman of the Federal Power Commission, the head of any other affected Federal department or agency and, unless the lands proposed to be included in the area are already owned by the United States or have already been authorized for acquisition by Act of Congress, the Governor or the State or States in which they are located or an officer designated by the Governor to receive the same. Any recommendations or comments on the proposal which the said officials furnish the Secretary or Secretaries who prepared the report within ninety days of the date on which the report is submitted to them, together

with the Secretary's or Secretaries' comments thereon, shall be included with the transmittal to the President and the Congress.

(c) Before approving or disapproving for inclusion in the national wild and scenic rivers system any river designated as a wild, scenic or recreational river by or pursuant to an act of a State legislature, the Secretary of the Interior shall submit the proposal to the Secretary of Agriculture, the Secretary of the Army, the Chairman of the Federal Power Commission, and the head of any other affected Federal department or agency and shall evaluate and give due weight to any recommendations or comments which the said officials furnish him within ninety days of the date of which it is submitted to them. If he approves the proposed inclusion, he shall publish notice thereof in the Federal Register.

(d) The boundaries of any river proposed in section 5 (a) of this Act for potential addition to the National Wild and Scenic Rivers System shall generally comprise that area measured within one-quarter mile from the ordinary highwater mark on each side of the river. In the case of any designated river, prior to publication of boundaries pursuant to section 3 (b) of this Act, the boundaries also shall comprise the same area. This subsection shall not be construed to limit the possible scope of the study report to address areas which may lie more than one-quarter mile from the ordinary high water mark on each side of the river.

SEC. 5. (a) The following rivers are hereby designated for potential addition to the national wild and scenic river system:

(designation language for individual W&S study rivers)

(b)(4) For the purposes of conducting the studies of rivers named in subsection (a) there are authorized to be appropriated such sums as necessary.

(c) The study of any of said rivers shall be pursued in as close cooperation with appropriate agencies of the affected State and its political subdivisions as possible, shall be carried on jointly with such agencies if request for such joint study is made by the State, and shall include a determination of the degree to which the State or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the national wild and scenic rivers system.

(d) In all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas, and all river basin and project plan reports submitted to the Congress shall consider and discuss any such potentials. The Secretary of the Interior and the Secretary of Agriculture shall make specific studies and investigations to determine which additional wild, scenic and recreational river areas within the United States shall be evaluated in planning reports by all Federal agencies as potential alternative uses of the water and related land resources involved.

SEC. 6. (a)(1) The Secretary of the Interior and the Secretary of Agriculture are each authorized to acquire lands and interests in land within the authorized boundaries of any component of the national wild and scenic rivers system designated in section 3 of this Act, or hereafter designated for inclusion in the system by Act of Congress, which is administered by him, but he shall not acquire fee title to an average of more than 100 acres

per mile on both sides of the river. Lands owned by a State may be acquired only by donation or by exchange in accordance with subsection (d) of this section. Lands owned by an Indian tribe or a political subdivision of a State may not be acquired without the consent of the appropriate governing body thereof as long as the Indian tribe or political subdivision is following a plan for management and protection of the lands which the Secretary finds protects the land and assures its use for purposes consistent with this Act. Money appropriated for Federal purposes from the land and water conservation fund shall, without prejudice to the use of appropriations from other sources, be available to Federal departments and agencies for the acquisition of property for the purposes of this Act.

(2) When a tract of land lies partially within and partially outside the boundaries of a component of the National Wild and Scenic System, the appropriate Secretary may, with the consent of the land owners for the portion outside of the boundaries, acquire the entire tract. The land or interest therein so acquired outside the boundaries shall not be counted against the average one-hundred-acre-per-mile limitation of subsection (a)(1). The lands or interests therein outside such boundaries, shall be disposed of, consistent with existing authorities of law, by sale, lease, or exchange.

(b) If 50 per centum or more of the entire acreage outside of the ordinary high water mark on both sides of the river within a federally administered wild, scenic or recreational river area is owned in fee title by the United States, by the State or States within which it lies, or by political subdivisions of those States, neither Secretary shall acquire fee title to any lands by condemnation under authority of this Act. Nothing contained in this section, however, shall preclude the use of condemnation when necessary to clear title or to acquire scenic easements or other such easements as are reasonably necessary to give the public access to the river and to permit its members to traverse the length of the area or of selected segments thereof.

(c) Neither the Secretary of the Interior nor the Secretary of Agriculture may acquire lands by condemnation, for the purpose of including such lands in any national wild, scenic or recreational river area, if such lands are located within any incorporated city, village, or borough which has in force and applicable to such lands a duly adopted, valid zoning ordinance that conforms with the purposes of this Act. In order to carry out the provisions of this subsection, the appropriate Secretary shall issue guidelines, specifying standards for local zoning ordinances, which are consistent with the purposes of this Act. The standards specified in such guidelines shall have the object of (A) prohibiting new commercial or industrial uses other than commercial or industrial uses which are consistent with the purposes of this Act, and (B) the protection of the bank lands by means of acreage, frontage, and setback requirements on development.

(d) The appropriate Secretary is authorized to accept title to non-Federal property within the authorized boundaries of any federally administered component of the national wild and scenic rivers system designated in section 3 of this Act or hereafter designated for inclusion in the system by Act of Congress and, in exchange therefor, convey to the grantor any federally owned property which is under his jurisdiction within the State in which the component lies and which he classifies as suitable for exchange or other disposal. The values of the properties so exchanged

either shall be approximately equal or, if they are not approximately equal, shall be equalized by the payment of cash to the grantor or the Secretary as the circumstances require.

(e) The head of any Federal department or agency having administrative jurisdiction over any lands or interests in land within the authorized boundaries of any federally administered component of the national wild and scenic rivers system designated in section 3 of this Act or hereafter designated for inclusion in the system by Act of Congress is authorized to transfer to the appropriate Secretary jurisdiction over such lands for administration in accordance with the provisions of this Act. Lands acquired by or transferred to the Secretary of Agriculture for the purposes of this Act within or adjacent to a national forest shall upon such acquisition or transfer become national forest lands.

(f) The appropriate Secretary is authorized to accept donations of land and interests in land, funds, and other property for use in connection with his administration of the national wild and scenic rivers system.

(g)(1) Any owner or owners (hereinafter in this subsection referred to as "owner") of improved property on the date of its acquisition, may retain for themselves and their successors or assigns a right of use and occupancy of the improved property for noncommercial residential purposes for a definite term not to exceed twenty-five years or, in lieu thereof, for a term ending at the death of the owner, or the death of his spouse, or the death of either or both of them. The owner shall elect the term to be reserved. The appropriate Secretary shall pay to the owner the fair market value of the property on the date of such acquisition less the fair market value on such date of the right retained by the owner.

(2) A right of use and occupancy retained pursuant to this subsection shall be subject to termination whenever the appropriate Secretary is given reasonable cause to find that such use and occupancy is being exercised in a manner which conflicts with the purposes of this Act. In event of such a finding, the Secretary shall tender to the holder of that right an amount equal to the fair market value of that portion of the right which remains unexpired on the date of termination. Such right of use or occupancy shall terminate by operation of law upon tender of the fair market price.

(3) The term "improved property", as used in this Act, means a detached, one-family dwelling (hereinafter referred to as "dwelling"), the construction of which was begun before January 1, 1967, (except where a different date is specifically provided by law with respect to any particular river), together with so much of the land on which the dwelling is situated, the said land being in the same ownership as the dwelling, as the appropriate Secretary shall designate to be reasonably necessary for the enjoyment of the dwelling for the sole purpose of noncommercial residential use, together with any structures accessory to the dwelling which are situated on the land so designated.

SEC. 7. (a) The Federal Power Commission shall not license the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act (41 Stat. 1063), as amended (16 U.S.C. 791a et seq.) on or directly affecting any river which is designated in section 3 of this Act as a component of the national wild and scenic rivers system or which is hereafter designated for inclusion

in that system, and no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration. Nothing contained in the foregoing sentence, however, shall preclude licensing of, or assistance to, developments below or above a wild, scenic or recreational river area or on any stream tributary thereto which will not invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of designation of a river as a component of the National Wild and Scenic Rivers System. No department or agency of the United States shall recommend authorization of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration, or request appropriations to begin construction of any such project, whether heretofore or hereafter authorized, without advising the Secretary of the Interior or the Secretary of Agriculture, as the case may be in writing of its intention so to do at least sixty day in advance, and without specifically reporting to the Congress in writing at the time it makes its recommendation or request in what respect construction of such project would be in conflict with the purposes of this Act....

(b) The Federal Power Commission shall not license the construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act, as amended on or directly affecting any river which is listed in section 5, subsection (a), of this Act, and no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river might be designated, as determined by the Secretary charged responsible for its study or approval -

(i) during the ten-year period following enactment of this Act or for a three complete fiscal year period following any Act of Congress designating any river for potential addition to the national wild and scenic rivers system, whichever is later, unless, prior to the expiration of the relevant period, the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture, on the basis of study, determine that such river should not be included in the national wild and scenic river system and notify the Committees on Interior and Insular Affairs of the United States Congress, in writing, including a copy of the study upon which the determination was made, at least one hundred and eighty days while Congress is in session prior to publishing notice to that effect in the Federal Register: *Provided,* That if any Act designating any river or rivers for potential addition to the national wild and scenic river system provides a period for the study or studies which exceeds such three complete fiscal year period the period provided for in such Act shall be substituted for the three complete fiscal year period in the provisions of this clause (i); and

(ii) during such interim period from the date a report is due and the time a report is actually submitted to Congress; and

(iii) during such additional period thereafter as, in the case of any river the report for which is submitted to the President and the Congress for inclusion in the national wild and scenic rivers system, is necessary for congressional consideration thereof or, in the case of any river recommended to the Secretary of the Interior under section 2(a)(ii) of this Act, is necessary for the Secretary's consideration thereof, which additional period, however, shall not exceed three years in the first case and one year in the second.

Nothing contained in the foregoing sentence, however, shall preclude licensing of, or assistance to developments below or above a potential wild, scenic or recreational river area or on any stream tributary thereto which will not invade the area or diminish the scenic, recreational, and fish and wildlife values present in the potential wild, scenic or recreational river area on the date of designation of a river for study as provided by section 5 of this Act. No department or agency of the United States shall, during the periods hereinbefore specified, recommend authorization of any water resources project on any such river or request appropriations to begin construction of any such project, whether heretofore or hereafter authorized, without advising the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture in writing of its intention so to do at least sixty day in advance of doing so and without specifically reporting to the Congress in writing at the time it makes its recommendation or request in what respect construction of such project would be in conflict with the purposes of this Act and would affect the component and the values to be protected by it under this Act.

(c) The Federal Power Commission and all other Federal agencies shall, promptly upon enactment of this Act, inform the Secretary of the Interior and, where national forest lands are involved, the Secretary of Agriculture, of any proceedings, studies, or other activities within their jurisdiction which are now in progress and which affect or may affect any of the rivers specified in section 5, subsection (a), of this Act. They shall likewise inform him of any such proceedings, studies, or other activities which are hereafter commenced or resumed before they are commenced or resumed.

(d) Nothing in this section with respect to the making of a loan or grant shall apply to grants made under the Land and Water Conservation Act of 1965 (78 Stat. 897; 16 U.S.C. 4601-5 et seq.).

SEC. 8. (a) All public lands within the authorized boundaries of any component of the national wild and scenic rivers system which is designated in section 3 of this Act or which is hereafter designated for inclusion in that system are hereby withdrawn from entry, sale, or other disposition under the public land laws of the United States. This subsection shall not be construed to limit the authorities granted in section 6(d) or 14A of this Act.

(b) All public lands which constitute the bed or bank, or are within one-quarter mile of the bank, of any river which is listed in section 5, subsection (a), of this Act are hereby withdrawn from entry, sale, or other disposition under the public land laws of the United States for the periods specified in section 7, subsection (b), of this Act....

SEC. 9. (a) Nothing in this Act shall affect the applicability of the United States mining and mineral leasing laws within components of the national wild and scenic rivers system except that --

(i) all prospecting, mining operations, and other activities on mining claims which, in the case of a component of the system designated in section 3 of this Act, have not heretofore been perfected or which, in the case of a component hereafter designated pursuant to this Act or any other Act of Congress, are not perfected before its inclusion in the system and all mining operations and other activities under a mineral lease, license, or permit issued or renewed after inclusion of a component in the system shall be subject to such regulations as the Secretary of the Interior or, in the case of national forest lands, the Secretary of Agriculture may prescribe to effectuate the purposes of this Act;

(ii) subject to valid existing rights, the perfection of, or issuance of a patent to, any mining claim affecting lands within the system shall confer or convey a right or title only to the mineral deposits and such rights only to the use of the surface and the surface resources as are reasonably required to carrying on prospecting or mining operations and are consistent with such regulations as may be prescribed by the Secretary of the Interior or, in the case of national forest lands, by the Secretary of Agriculture.

(iii) subject to valid existing rights, the minerals in Federal lands which are part of the system and constitute the bed or bank or are situated within one-quarter mile of the bank of any river designated a wild river under this Act or any subsequent Act are hereby withdrawn from all forms of appropriation under the mining laws and from operation of the mineral leasing laws including, in both cases, amendments thereto.

Regulations issued pursuant to paragraphs (i) and (ii) of this subsection shall, among other things, provide safeguards against pollution of the river involved and unnecessary impairment of the scenery within the components in question.

(b) The minerals in any Federal lands which constitute the bed or bank or are situated within one-quarter mile of the bank of any river which is listed in section 5, subsection (a) of this Act are hereby withdrawn from all forms of appropriation under the mining and leasing laws during the periods specified in section 7, subsection (b) of this Act. Nothing contained in this subsection shall be construed to forbid prospecting or the issuance of leases, licenses, and permits under the mineral leasing laws subject to such conditions as the Secretary of the Interior and, in the case of national forest lands, the Secretary of Agriculture find appropriate to safeguard the area in the event it is subsequently included in the system....

SEC. 10 (a) Each component of the national wild and scenic rivers system shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration primary emphasis shall be given to protecting its esthetic, scenic, historic, archeologic, and scientific features. Management plans for any such

component may establish varying degrees of intensity for its protection and development, based on the special attributes of the area.

(b) Any portion of a component of the national wild and scenic rivers system that is within the national wilderness preservation system, as established by or pursuant to the Act of September 3, 1964 (78 Stat. 890; 16 U.S.C., ch. 23), shall be subject to the provisions of both the Wilderness Act and this Act with respect to preservation of such river and its immediate environment, and in case of conflict between the provisions of these Acts the more restrictive provisions apply.

(c) Any component of the national wild and scenic rivers system that is administered by the secretary of the Interior through the National Park Service shall become a part of the national park system, and any such component that is administered by the Secretary through the Fish and Wildlife Service shall become a part of the national wildlife refuge system. The lands involved shall be subject to the provisions of this Act and the Acts under which the national park system or national wildlife system, as the case may be, is administered, and in the case of conflict between the provisions of these Acts, the more restrictive provisions shall apply. The Secretary of the Interior, in his administration of any component of the national wild and scenic rivers system, may utilize such general statutory authorities relating to areas of the national park system and such general statutory authorities otherwise available to him for recreation and preservation purposes and for the conservation and management of natural resources as he deems appropriate to carry out the purposes of this Act.

(d) The Secretary of Agriculture, in his administration of any component of the national wild and scenic rivers system area, may utilize the general statutory authorities relating to the national forest in such manner as he deems appropriate to carry out the purposes of this Act.

(e) The Federal agency charged with the administration of any component of the national wild and scenic rivers system may enter into written cooperative agreements with the Governor of a State, the head of any State agency, or the appropriate official of a political subdivision of a State for State or local governmental participation in the administration of the component. The States and their political subdivisions shall be encouraged to cooperate in the planning and administration of components of the system which include or adjoin State- or County-owned lands.

SEC. 11. (a) The Secretary of the Interior shall encourage and assist the States to consider, in formulating and carrying out their comprehensive statewide outdoor recreation plans and proposals for financing assistance for State and local projects submitted pursuant to the Land and Water Conservation Fund Act of 1965 (78 Stat. 897), needs and opportunities for establishing State and local wild, scenic and recreational river areas.

(b) (1) The Secretary of the Interior, the Secretary of Agriculture, or the head of any Federal agency, shall assist, advise, and cooperate with States or their political subdivisions, landowners, private organizations, or individuals to plan, protect, and manage river resources. Such assistance, advice, and cooperation may be through written agreements or otherwise. This authority applies within or outside a federally administered area and applies to rivers which are components of the Wild and Scenic Rivers System and to other rivers. Any agreement under this section may include

provisions for limited financial or other assistance to encourage participation in the acquisition, protection and management of river resources.

(2) Whenever appropriate in furtherance of this Act, the Secretary of Agriculture and the Secretary of the Interior are authorized and encouraged to utilize the following:

(A) For activities on federally owned land, the Volunteers in the Parks Act of 1969 (16 U.S.C. 18g-j) and the Volunteers in the Forest Act of 1972 (16 U.S.C. 558a-558d).

(B) For activities on all other lands, section 6 of the Land and Water Conservation Fund Act of 1965 (relating to the development of statewide comprehensive outdoor recreation plans).

(3) For purposes of this subsection, the appropriate Secretary or the head of any Federal agency may utilize and make available Federal facilities, equipment, tools, and technical assistance to volunteers and volunteer organizations, subject to such limitations and restrictions as the appropriate Secretary or the head of any Federal agency deem necessary or desirable.

(4) No permit or other authorization provided for under provision of any other Federal law shall be conditioned on the existence of any agreement provided for in this section.

SEC. 12 (a) The Secretary of the Interior, the Secretary of Agriculture, and the head of any other Federal department or agency having jurisdiction over any lands which include, border upon, or are adjacent to, any river included within the National Wild and Scenic Rivers System or under consideration for such inclusion in accordance with section 2(a)(ii), 3(a), or 5(a), shall take such action respecting management policies, regulations, contracts, plans, affecting such lands, following the date of enactment of this sentence, as may be necessary to protect such rivers in accordance with the purposes of this Act. Such Secretary or other department or agency head shall, where appropriate, enter into written cooperative agreements with the appropriate State and local official for the planning, administration, and management of Federal lands which are within the boundaries of any rivers for which approval has been granted under section 2(a)(ii). Particular attention shall be given to scheduled timber harvesting, road construction, and similar activities which might be contrary to the purposes of this Act.

(b) Nothing in this section shall be construed to abrogate any existing rights, privileges, or contracts affecting Federal lands held by any private party without the consent of said party.

(c) The head of any agency administering a component of the national wild and scenic rivers system shall cooperate with the Administrator, Environmental Protection Agency and the appropriate State water pollution control agencies for the purpose of eliminating or diminishing the pollution of waters of the river.

SEC. 13 (a) Nothing in this Act shall affect the jurisdiction or responsibilities of the States with respect to fish and wildlife. Hunting and fishing shall be permitted on lands and waters administered as parts of the system under applicable State and Federal laws and regulations unless, in the case of hunting, those lands or waters are within a national park or monument. The administering Secretary may, however, designate zones

where, and establish periods when, no hunting is permitted for reasons of public safety, administration, or public use and enjoyment and shall issue appropriate regulations after consultation with the wildlife agency of the State or States affected.

(b) The jurisdiction of the States and the United States over waters of any stream included in a national wild, scenic or recreational river area shall be determined by established principles of law. Under the provisions of this Act, any taking by the United States of a water right which is vested under either State or Federal law at the time such river is included in the national wild and scenic rivers system shall entitle the owner thereof to just compensation. Nothing in this Act shall constitute an express or implied claim or denial on the part of the Federal Government as to exemption from State water laws.

(c) Designation of any stream or portion thereof as a national wild, scenic or recreational river area shall not be construed as a reservation of the waters of such streams for purposes other than those specified in this Act, or in quantities greater than necessary to accomplish these purposes.

(d) The jurisdiction of the States over waters of any stream included in a national wild, scenic or recreational river area shall be unaffected by this Act to the extent that such jurisdiction may be exercised without impairing the purposes of this Act or its administration.

(e) Nothing contained in this Act shall be construed to alter, amend, repeal, interpret, modify, or be in conflict with any interstate compact made by any States which contain any portion of the national wild and scenic rivers system.

(f) Nothing in this Act shall affect existing rights of any State, including the right of access, with respect to the beds of navigable streams, tributaries, or rivers (or segments thereof) located in a national wild, scenic or recreational river area.

(g) The Secretary of the Interior or the Secretary of Agriculture, as the case may be, may grant easements and rights-of-way upon, over, under, across, or through any component of the national wild and scenic rivers system in accordance with the laws applicable to the national park system and the national forest system, respectively: *Provided,* That any conditions precedent to granting such easements and rights-of-way shall be related to the policy and purpose of this Act.

SEC. 14. (a) The claim and allowance of the value of an easement as a charitable contribution under section 170 of title 26, United States Code, or as a gift under section 2522 of said title shall constitute an agreement by the donor on behalf of himself, his heirs, and assigns that, if the terms of the instrument creating the easement are violated, the donee or the United States may acquire the servient estate of its fair market value as of the time the easement was donated minus the value of the easement claimed and allowed as a charitable contribution or gift.

(b) For the conservation purposes of preserving or enhancing the values of components of the National Wild and Scenic River System, and the environs thereof as determined by the appropriate Secretary, landowners are authorized to donate or otherwise convey qualified real property interests to qualified organizations consistent with section 170(h)(3) of the Internal Revenue Code of 1954. Such interest may include, but shall not be limited to, rights-of-way, open space, scenic, or conservation easements without

regard to any limitation on the nature of the estate or interest otherwise transferable within the jurisdiction where the land is located. The conveyance of any such interest in land in accordance with this subsection shall be deemed to further a Federal conservation policy and yield a significant public benefit for purposes of section 6 of Public Law 96-541.

SEC. 14A. (a) Where appropriate in the discretion of the Secretary, he may lease federally owned land (or any interest therein) which is within the boundaries of any component of the National Wild and Scenic Rivers system and which has been acquired by the Secretary under this Act. Such lease shall be subject to such restrictive covenants as may be necessary to carry out the purposes of this Act.

(b) Any land to be leased by the Secretary under this section shall be offered first for such lease to the person who owned such land immediately before its acquisition by the United States.

SEC. 15....

SEC. 16. As used in this Act, the term--

(a) "River" means a flowing body of water or estuary or a section, portion, or tributary thereof, including rivers, creeks, runs, kills, rills, and small lakes.

(b) "Free-flowing", as applied to any river or section of a river, means existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion in the national wild and scenic river system shall not automatically bar its consideration for such inclusion: *Provided,* That this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the national wild and scenic rivers system.

(c) " Scenic easement" means the right to control the use of land (including the air space above such land) within the authorized boundaries of a component of the wild and scenic river system, for the purpose of protecting the natural qualities of a designated wild, scenic or recreational river area, but such control shall not affect, without the owner's consent, any regular use exercised prior to the acquisition of the easement. For any designated wild and scenic river, the appropriate Secretary shall treat the acquisition of fee title with the reservation of regular existing uses to the owner as a scenic easement for the purposes of this Act. Such an acquisition shall not constitute fee title ownership for purposes of section 6(b).

SEC.17....

(Provisions of the Wild and Scenic Rivers Act that are applicable only to specific rivers have been deleted from this version of the Act in the interest of brevity. The Federal Power Commission is now the Federal Energy Regulatory Commission.)

Friends of the River & the Merced Canyon Committee 11/88

Appendix D

RESOURCE ASSESSMENT

RESOURCE ASSESSMENT

North Fork Malheur National Wild and Scenic River

USDA-Forest Service

Malheur National Forest

January 1992

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY

As a result of the Omnibus Oregon Wild and Scenic Rivers Act of 1988, a segment of the North Fork Malheur River was designated as a Wild and Scenic River (W&SR). Under this act the Forest Service is required to prepare a comprehensive management plan to provide protection of the river values associated with the North Fork Malheur River. This resource assessment is being done to identify the river-related values that are outstandingly remarkable.

The findings of the Forest Service interdisciplinary team determined the following resources to be outstandingly remarkable values: SCENERY, GEOLOGY, FISHERIES AND WILDLIFE.

II. INTRODUCTION

In 1968, Congress enacted the National Wild and Scenic Rivers Act, and for the first time, established a system for preserving outstanding free-flowing rivers. The North Fork Malheur River was added to this system in 1988 when it was designated as a National Wild and Scenic River by the Omnibus Oregon Wild and Scenic Rivers Act of 1988. As defined by the Act, a National Wild and Scenic River must be free-flowing and have at least one "outstandingly remarkable value." **The outstandingly remarkable values of the North Fork Malheur River identified in the Congressional Record were SCENERY and GEOLOGY.**

Under the Wild and Scenic Rivers Act, the Forest Service is required to prepare a comprehensive river management plan to provide for the protection and/or enhancement of the river values. This river planning process, of which the resource assessment is one step, will comply with the National Environmental Policy Act (NEPA) planning regulations. Through each phase of the planning process, public involvement will be invited and is essential for the success of a sound management plan.

III. THE RESOURCE ASSESSMENT PROCESS

This resource assessment serves as the foundation of the river management planning process. The assessment documents the determination of which river-related values or features are outstandingly remarkable, or contribute substantially to the river setting, or to the functioning of the river ecosystem.

Because Oregon rivers added to the Wild and Scenic Rivers System in 1988 did not have a formal study completed on them prior to legislative action which would have identified the outstandingly remarkable values of each river, this analysis is being done to verify those values identified in committee reports and to identify values that may have been overlooked prior to passage of the Omnibus Oregon Wild and Scenic Rivers Act.

The resource assessment process provides a standardized approach to evaluation of values of designated Wild and Scenic Rivers. This assessment will guide interim management, development of the management plan, and determination of boundaries.

Although the determination of value significance is a matter of informed professional judgement and interpretation, this process includes the following steps or verification techniques:

- The use of an interdisciplinary team approach, collecting river resource information and making comparisons against established value evaluation criteria.

- Consideration of uniqueness and rarity at a regional and national level. The region of consideration is southern Baker and Grant Counties and northern Malheur and Harney Counties, Oregon.* Other rivers in this region of comparison include the Malheur, Owyhee, and South Fork John Day, also Wild and Scenic Rivers, the Silvies, Middle Fork John Day, and Powder Rivers.

- The use of qualitative guidelines (Criteria for Outstandingly Remarkable) to help determine significance. These guidelines were developed in 1990 by the Oregon Wild and Scenic Rivers Policy Group, made up of representatives from federal and state agencies, the Congressional delegation, private interests, and environmental organizations.

- Verification by other experts in the subject area.

The resource categories that have been considered include:

Scenery	Recreation
Geology	Fisheries
Wildlife	Historic/Prehistoric
Traditional Use/Cultural	Hydrologic/Water Quality
Botany/Ecology	

*Based partially on the eight geographic regions described in the 1989 Statewide Comprehensive Outdoor Recreation Plan for Oregon (SCORP).

IV. RIVER DESCRIPTION

The North Fork Malheur River flows from headwater streams in the Blue Mountains, at elevations over 8,000 feet, southerly through the Malheur National Forest. The river flows easterly after joining the mainstem Malheur River near Juntura, which flows into the Snake River near Ontario, Oregon. The 22-mile segment of the North Fork Malheur River, designated as a component of the National Wild and Scenic Rivers System in 1988, is located entirely on National Forest land. The river segment from the Forest boundary, downstream to Beulah Reservoir was designated to be studied for suitability for addition to the Wild and Scenic River System. This study is currently in progress by the Bureau of Land Management.

For river description purposes, the river has been divided into two segments in this document:

Segment A — From the headwaters downstream about 11 miles to the 1675 road river crossing of the river, above the North Fork Campground.

Segment B — From the 1675 road river-crossing, downstream about 11 miles to the Forest boundary.

For the purposes of interim management until the river management plan is completed, the Forest Service established a corridor width of 1/4 mile on either side of the river. In 1990, a corridor boundary of varying widths which includes 7,034 acres, was established featuring the inclusion of outstandingly remarkable scenic and geologic values. These values were based on a preliminary resource assessment completed in 1989. That assessment was not reviewed by experts outside the Forest, and was based upon limited information about some of the river resources and river related values. This assessment takes new information about the river and builds upon the previous one. Adjustments to this corridor boundary may be made depending upon the findings of this resource assessment in order to better protect the outstandingly remarkable values.

V. DISCUSSION OF RIVER VALUES

SCENERY

Criteria for Outstandingly Remarkable Rating

The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features and/or attractions within the geographic region. When analyzing scenic values, additional factors such as seasonal variations in vegetation, scale of cultural modifications, and the length of time negative intrusions are viewed may be considered. Scenery and visual attractions may be highly diverse over the majority of the river or river segment length, and not common to other rivers in the geographic region.

Evaluation of the Present Situation

The scenic quality in the river corridor is a combined result of landforms, water, and vegetative features. In segment A, from the upper tributaries of the river to the North Fork Campground, the headwaters seep out at the edge of a horseshoe-shaped valley paralleled by hills and ridges. The vegetation consists primarily of green, forested areas of lodgepole pine along the west side, dark green mixed conifers along the east side, and open green, grassy meadows. During the spring the meadows are awash with hues of yellow from blooming wild flowers and the rolling hillsides display the brilliant green of the budding larch. During the fall, larch trees, now gold in color, stand out in the surrounding green forests. Occasional large ponderosa pine trees, with their orange-brown bark, tower above their reflection in the river. The river riffles through a narrow channel with few pools. The clear and inviting water quietly moves through dark lodgepole pine groves and lush meadows.

From Fopian Creek to the North Fork Campground, the surrounding vegetation is diverse but dominated by stands of picturesque and stately, large-diameter old growth ponderosa pine trees. Their orange bark contrasts with the background vegetation and reflects in the calmer, slower water. Meadows, dispersed camps, and roads that cross the river make good viewpoints. Access for recreationists can be gained by walking a 1/4 to 1/2 mile distance through the vegetation from the 13 and 16 roads, and by driving to the river's edge on several low standard roads.

Along the upper reaches of Segment B, from the bridge just north of North Fork Campground to the Forest Boundary, the river meanders through flat, green meadows. The surrounding forest green hillsides provide a nice backdrop. The meadows are awash in seas of yellow and brilliant green in the spring. Rapidly, the walls of the canyon steepen as it becomes narrower and deeper. Tan, black and gray rock cliffs tower above the river and loose, broken talus slopes cascade across the trail into the river. These rock formations with mossy growths and sharp angular edges, provide a stark contrast to the rushing water, tall trees and grassy slopes. The river, dark green to clear in color, bubbles through a series of riffles with few pools, boulders, or logs to slow its path. The vegetation is dominately large-diameter ponderosa pine, with orange-brown bark that reflects in the slower smooth water; larch with lacy gold crowns in the fall and explosions of bright green in the spring; and large-diameter douglas fir crowding along the river's edge. Spring shoots of yellow and dark red fall colors of willows, dogwood, and alders; white bark and delicate light-green leaves of scattered aspen; and pink-white flowers and orange-red berries of wax currant provide splashes of color throughout this segment. The steep east slopes in the southern portion of the river provide a contrast to the dense timbered stands. These grassy slopes include scattered juniper, ponderosa pine, sagebrush, and finely-broken rock formations with talus slopes extending steeply down to the river.

The vegetation changes dramatically over the length of the river including lodgepole and ponderosa pine in the upper section and, in the lower section, lodgepole and ponderosa pine, douglas fir, larch, grasses, willows, aspen, sage brush, juniper, and deciduous species. Young, mature, and old growth size classes are present in most species. The larch and deciduous trees add variety in color during the fall with golden yellow, bright red, and brown. In the spring, wildflowers cover the meadows and the larch trees add their bright green. The rock formations also add contrast with their gray, tan, and black tones, providing a backdrop for the vegetation and green waters of the river. Good vantage points for river viewing include the North Fork Malheur River Trail, paralleling most of this river segment, roads that cross the river at the North Fork Campground and Crane Crossing, and from meadows along the river. There is some evidence of timber harvest, fences, and other human intrusion in parts of the corridor. However, most of the corridor is undisturbed.

Overall, the attributes found in the lower section are not common to other rivers in the region. The Burnt and Powder Rivers meander through sage brush flats, few forested areas, and show evidence of agricultural activities. The South Fork and Main stem of the John Day Rivers are paralleled by roads along much of their course, intruding on the solitude of the river. The Silvies River meanders through sage brush flats with little diversity in vegetation, landform or color. With the exception of the Owyhee and Malheur Rivers, also designated Wild and Scenic, other rivers of the region of comparison do not provide the combination of vegetative variety, rich seasonal colors, land and rockform variety, and solitude that create a special intimate place, such as a wild and scenic river. Scenery protection for those areas visible from the river and outside the wild and scenic river corridor is provided by restrictive visual quality objectives, as these areas are included in a visual corridor under the direction of the Malheur National Forest Land and Resource Management Plan, 1990.

Findings

The North Fork Malheur River is a river of contrasts, from quiet, intimate settings along a forested flood plain, to dramatic, steep canyon settings with large-diameter old growth towering overhead.

Although significant, many of the scenic features in the upper portion of the river above Fopian Creek–grassy meadows with surrounding rolling uplands of forested lodgepole, fir and ponderosa pine–are common to other rivers in the region.

The lower portion of the river below Fopian Creek, with its steep canyon, green rushing water, diversity of shrubs, grasses, trees, rocky cliffs, talus slopes, old growth ponderosa pine stands, and seasonal splashes of reds, yellows, and bright greens, are rare and exemplary attributes not common elsewhere in the region. Many other rivers in the region have roads directly paralleling them for recreational access, limiting the opportunity for solitude and absorbing the beauty of the river's natural surroundings. The North Fork River Trail, which provides access, is not a significant feature that dominates the river landscape. The combination of water, diverse land and rock forms, vegetative variety and seasonal color, in a relatively undisturbed environment, creates a beautiful and unusual landscape throughout the year. **The scenic value of the river, from Fopian Creek south, is determined to be an outstandingly remarkable river value, and confirms the determination made by Congress.**

RECREATION

Criteria for Outstandingly Remarkable

Recreational opportunities are, or have the potential to be, unique enough to attract visitors from outside the geographic region. Visitors would be willing to travel long distances to use the river resources for recreational purposes. River-related opportunities could include, but are not limited to, sightseeing, wildlife observation, photography, hiking, fishing, hunting, and boating.

Interpretive opportunities may be exceptional and attract, or have the potential to attract, visitors from outside the geographic region.

The river may provide, or have the potential to provide, settings for national or regional usage or competitive events.

Evaluation of the Present Situation

The North Fork Malheur River provides settings for river-related recreational activities as well as unrelated ones. The North Fork Campground has five camping units located about midway down the river. Little Crane Campground and Elk Creek Campground are located outside the river corridor but within the general area. A popular dispersed camping area with toilets and picnic tables is located at Crane Creek Crossing. Use of this area is limited by poor accessibility due to 3 miles of low-standard road. Nevertheless, it is a popular destination campsite.

The majority of the river in Segment A provides the Recreation Opportunity Spectrum (ROS) class of roaded-natural, and is accessed from paved and native surface roads. Many dispersed camping sites are located in this area.

Approximately 1 mile south of the North Fork Campground, the ROS class changes to semi-primitive, non-motorized and this class continues downstream to the end of the designated river at the forest boundary. One low standard, but periodically maintained road, crosses the river in this segment at Crane Creek Crossing.

The North Fork Malheur Trail #381 parallels the river on the west side through Segment B, providing easy access by foot, horseback, and mountain bike. The trail is approximately 10 miles long with a difficulty rating of "easiest" due to favorable grades.

There are two developed trailheads associated with this trail. The northern trailhead, approximately 1/2 mile downstream of North Fork Campground, is easily accessed off the 1675 road. The trailhead on the southern end provides access to the North Fork Malheur River trail, approximately 2 miles from its southern terminus, via a short (1 mile) connector trail from the top of the rim. This trailhead receives limited use due to inadequate signing and poor access on very low-standard roads.

The Elk Flat Trail #362 links the North Fork Malheur River with the Little Malheur River Trail #366, 2 miles east of the river corridor. The trailhead and about 1 mile of this trail are within Segment A of the river corridor.

Dispersed camping associated with fishing, hiking, and swimming occurs along the entire length of the river, but primarily in Segment B. Anglers from both local and distant communities fish for native redband trout, whitefish, and rainbow trout. Opportunities for backpacking, horseback riding, mountain bike riding, photography, picnicking, and nature study exist throughout the corridor, but these pursuits are currently less popular than camping, fishing, hiking, and swimming.

Many hunters come to the river area to camp during fall hunting seasons, but the hunting occurs mostly outside the river corridor. Most of these hunters are from outside the geographical region. Game species in the area include upland game birds, Rocky Mountain elk, and mule deer.

A very small amount of whitewater rafting and kayaking occurs some years. It is severely limited by unpredictable high-flow periods during spring snowmelt, and by logs and other debris which block channels in some reaches. Muddy, impassable roads often make access to take-out points difficult. Winter sports opportunities are mostly in Segment A. Groomed snowmobile trails cross the river in several locations. Some cross-country skiing occurs within this segment, but most of these opportunities are limited due to unpredictable snow conditions from year to year and the lack of plowed roads for access.

In general, the North Fork Malheur River provides a wide variety of high quality recreational opportunities. Visitor use is relatively light, with the exception of hunting season and several popular summer weekends associated with holidays. Distance from population centers and lack of notoriety probably account for the current low usage.

Finding

The North Fork Malheur River provides a variety of high-quality recreational opportunities. These opportunities, however, are not considered unique in the region of comparison, east central Oregon. Though visitors from outside the region do access the area, usage is generally light, primarily due to the large distances from population centers in Oregon and Idaho. Use of the area is expected to increase over time as people seeking undeveloped recreation experiences and solitude are displaced from other areas. The recreational value of this river is not an outstandingly remarkable value, but is important, especially on a local level.

GEOLOGY

Criteria for Outstandingly Remarkable

The river, or the area within the river corridor, contains an example(s) of a geologic feature, process, or phenomena that is rare, unusual, one-of-a-kind, or unique to the geographic region. The feature(s) may be in an unusually active stage of development, represent a "textbook" example and/or represent a unique or rare combination of geologic features (erosional, glacial, and other geologic structures).

Evaluation of the Present Situation

The bedrock materials of this area are of volcanic origin from the Strawberry Volcanics Formation. The Strawberry Volcanics were extruded through shield volcanos and several vents in the vicinity of Strawberry Mountain and Lookout Mountain during a long series of eruptive events which occurred during Miocene and early Pliocene ages. The most active period occurred between 12 million and 15 million years ago, within an active structural basin that developed in the transitional zone between the Columbia Plateau and the Basin and Range geologic provinces. Subsequent uplift of the area through folding and faulting activities has been estimated to be as much as 7,500 to 9,000 feet.

Columnar structure is the dominant texture in the contemporaneous volcanic flows of the geographic region, but in much of the Strawberry Volcanics, a platy structure or texture is dominant. Parent materials are primarily andesites and basalts, which are generally highly stable and resistant to erosion.

This platy structure is especially evident in the outcrops and talus slopes along the river canyon along the south end of segment B. As the individual plates separate from the outcrops and begin to migrate downslope, they quickly become aligned parallel to each other and the slope beneath them. Talus slopes composed of these flat plates have very little frictional resistance to downslope movement relative to more massive or blocky materials found elsewhere. Consequently, movement within talus deposits is relatively easy to initiate when materials are undercut or disturbed through erosional or other processes.

The river follows the North Malheur Fault from its headwaters through most of Segment A. Glacial sculpting of the river valley is evident in the northern part. The river channel passes through areas where glacial moraines and Calluvium have deposited on the bedrock materials.

The volcanic materials are best exposed in Segment B, where the river has carved the deepest canyon. Total relief from the top of the canyon to the river level in this segment ranges from 250 to 750 feet. Vertical cliffs as high as 50 feet are common in some areas. Ancient mass movements or slope failures have occurred in this segment where the river undercut the sides of the canyon until they became unstable and sloughed or failed as large blocks of material. One of the largest relic debris deposits is just below Skagway Creek, where the block has since eroded into a rounded knob.

The North Fork Malheur River canyon offers the best opportunity in the area to view the Strawberry Volcanics formation within a river and canyon environment. In addition, the geologic features add significant interest, form, and color to the general scenery of the river corridor, with pinnacles, hoodoos, cliffs, overhangs, and large talus slopes.

Finding

The geologic formation of the Strawberry Volcanics is unique to the geographic region and is unusual in structure. It adds to the beauty and scenic character of the river canyon. The geologic formation of the Strawberry Volcanics and the features it expresses within the river canyon is assessed as being an outstandingly remarkable value, especially in the southern end of the designated river.

FISHERIES

Criteria for Outstanding Remarkable

Fish values may be judged on the combination of relative merits of either fish populations or habitat–or a combination of these river-related conditions.

Populations. The river is nationally or regionally an important producer of resident and/or anadromous fish species. Of particular significance is the presence of wild stocks and/or threatened and endangered species.

Habitat. The river provides exceptionally high-quality habitat for fish species indigenous to the region. Of particular significance is habitat for wild stocks and/or federally listed or candidate threatened and endangered species.

Evaluation of the Present Situation

The Wild and Scenic North Fork Malheur River is a valuable habitat for two sensitive fish species: the bull trout and redband trout. It also serves as an important recreational fishing area. Flowing southerly for about 22 miles from high headwater areas in the southern Blue Mountains to the Malheur National Forest boundary, the waters from the North Fork eventually drain into the Pacific Ocean by way of the Snake and Columbia Rivers.

The river once supported runs of two anadromous fish species: chinook salmon and steelhead trout. With the construction of the Agency Dam in 1935, these runs were blocked from upstream migration. The Pacific lamprey eel, another anadromous species, is known to have existed in the Snake and Owyhee Rivers, and may also have been present.

Bull trout distribution in the Snake River and tributaries was historically much greater than it is now. Bull trout probably migrated from the Snake River up into the North Fork Malheur for spawning and rearing. The river once had the reputation as a producer of large bull trout, commonly greater than 20 inches in length. However, this fish species has been decreasing in number. This decline can be traced at least as far back as the construction of the dam, which blocked access to these upriver areas. The bull trout population in the North Fork is now isolated from other populations.

Water quality in the river is very high. Tributary streams and several large springs within the corridor, especially in Segment A, provide cool, clean water to the system. Bull trout require high-quality habitat conditions. These fish are found in several of the tributary streams as well

as in the river. This reflects the exceptional habitat conditions found there. There has been no quantitative macroinvertebrate sampling; however, general observations of species composition and abundance indicate high water quality and ample food supply for resident fisheries. Mayflies, stoneflies and caddisflies are all common and abundant. The presence of smaller cyprinids and cottids is also important for the diet of the bull trout, which is more piscivorous than the other resident salmonids.

Fish habitat is diverse and of good quality, particularly in Segment A. However, there have been impacts to the fisheries in the river. In addition to the Agency Dam construction, agricultural development below the Forest boundary has had major effects on fish habitat, which is affecting the overall vigor of the fish populations in the river. Within the corridor, stable undercut banks and overhanging streambank vegetation are not at their full potential. This is primarily due to livestock management, however, recreation use is also a factor. Compared to other undeveloped river corridors, the North Fork Malheur is very limited in large rearing pools associated with log jams and other large woody debris. The reasons for this are not clear, but the 1964 flood may be one contributing factor. Habitat could be improved by the addition of more large woody debris which could provide more pools.

Two irrigation diversions of the river and one on a tributary also have some effect on water quality and quantity in the river. Some fish may also get trapped in these ditches, resulting in additional mortality. These diversions are being evaluated and plans made to correct problems with these ditches. That effort is separate from this Wild & Scenic River planning.

Recreational access to the river corridor has improved over time, and this has led to increased fishing pressure. However, this pressure is less than in most other rivers in the area. One benefit for bull trout in the North Fork is that brook trout have not been successfully introduced into the river. Thus, interbreeding between these two species, which causes a decline in many other bull trout populations, is not a problem.

In the lower reaches of the river corridor, higher water temperatures limit the habitat for cold water species, in particular the bull trout. This occurs during summer low-flow periods. There is a limited potential to provide more streamside vegetation, which could decrease the water-warming rate as it flows downstream and extend the reach of cooler water.

Redband trout and bull trout are listed as Category 2 species under the Threatened and Endangered Species Act. More information about these species is needed before a determination of threatened or endangered status can be made. These fish are also on the the Regional Forester's (Region 6) Sensitive Species List. Because of the decline of bull trout in the river, and generally throughout its range, the Oregon Department of Fish and Wildlife (ODF&W) has placed an emergency closure on the taking of this species.

Native redband trout, whitefish, and stocked rainbow trout are commonly caught by anglers from both local and distant communities. Until the recent closure to the taking of bull trout, they would have also been included in this list. The river has been stocked with rainbow trout since the mid-1950s. Stocking of catchable-size rainbow trout has been reduced in recent years to reduce possible adverse impacts to the native redband trout and bull trout. Presently, 1,100 fish per year are stocked at the high-use area around the North Fork Campground before the Fourth of July holiday. Creel surveys completed while stocking levels were higher, indicated that most of these stocked fish were caught within a fairly short period of time after they were introduced. Also, very

few larger hatchery fish were caught, indicating that survival of these stocked fish to a reproductive age is very low. Therefore, the ODF&W feels that the risk of interbreeding of stocked fish with wild redband trout is minimal at the current stocking level.

In the high recreational use area around the North Fork campground, a large percentage of the fish caught are stocked hatchery rainbow trout. Catch rates are good, but few trophy-size fish are caught. Trophy-size redband trout (16-18 inches) are caught in the less accessible canyon stretch of the river, near the Forest boundary.

There are five species of minnows, two sucker species, and one sculpin species present in the river. Warm water fish such as bass are stocked belowBeulah Reservoir, but these fish do not move up into the designated portion of the river.

The designated portion of the river may have once been an important fishing area for early man, but there are no known areas along the river where these fishing sites are located.

Finding

On a regional basis, the North Fork Malheur River is important for its fishery values. It provides high-quality habitat for two sensitive species of native fish and excellent recreational fishing opportunities. It ranks as one of the highest quality fisheries in the region of comparison. With the exception of the North Fork John Day, the North Fork Malheur and tributaries provide the largest remaining contiguous block of suitable habitat for bull trout in the region of comparison, and possibly for a much larger area. **The fish populations and fish habitats of the North Fork Malheur River are determined to be outstandingly remarkable values.**

WILDLIFE

Criteria for Outstandingly Remarkable

Wildlife values may be judged on the relative merits of either wildlife populations or habitat, or a combination of these conditions.

Populations. The river, or area within the river corridor, contains nationally or regionally important populations of indigenous wildlife species. Of particular significance are species considered to be unique or populations of federally listed or candidate threatened and endangered species.

Habitat. The river or area within the river corridor provides exceptionally high quality habitat for wildlife of national or regional significance, or may provide a unique habitat, or a critical link in habitat conditions, for federally listed or candidate threatened and endangered species. Contiguous habitat conditions are such that the biological needs of the species are met.

Evaluation of the Present Situation

Populations

The North Fork Malheur River corridor, due to its location, habitat quality, and diversity, has the potential to support nearly all the wildlife speciesfound on the Malheur National Forest. Over 195 species of birds, 70 species of mammals, and 20 species of amphibians and reptiles are known, or suspected to spend portions of their lives, within the river corridor.

Some of the common species of economic or other interest are cougar, bobcat, coyote, badger, beaver, osprey, Rocky Mountain elk, mule deer, black bear and pileated woodpeckers. The large number of species inhabiting the area reflects the diversity of habitats and remoteness found in many areas of the canyon, especially in Segment B.

There are no known populations of threatened or endangered species which inhabit the river corridor on a continuous basis. The western sage grouse and goshawk, both Federal candidate species, are known residents of the corridor. Other candidate species, such as the ferruginous hawk and Townsend's big-eared bat, may also be found here.

Wildlife populations, though diverse, are typical of river canyons and upland areas within the region of comparison. Information is not known whether these populations are of greater significance than surrounding areas.

Habitat

The North Fork Malheur River drainage is a relatively intact corridor extending from the Canadian to Upper Sonoran life zones. This is somewhat unique within the region of influence. The corridor provides diverse, high quality habitat for the maintenance of viable populations of a wide range of wildlife species.

The majority of this corridor has had little or no resource management activity, however, some past timber harvest units are located in the upper reaches of Segment A. The entire corridor has been grazed by cattle and is included within grazing allotments. Most grazing within the river corridor occurs within the riparian zones along the river and tributary streams. Roads parallel and bridge the river in Segment A. In Segment B, with the exception of a low-standard road which intersects at Crane Creek Crossing, the river corridor is unroaded.

From the headwaters in the northern portion of Segment A to the southern terminus of the designated river in Segment B, this river canyon provides streamside and meadow vegetation, talus slopes, mature stands of ponderosa pine and other conifer species, and open sagebrush and perennial bunchgrass slopes. It is an area rich in habitat diversity.

The habitat types within the corridor provide essential hiding, resting, feeding, and nesting/denning areas for the many species inhabiting it. The river corridor provides potential nesting habitat for two threatened and endangered species not currently residing there. The American pergrine falcon could nest on the rock outcrops and cliffs in Segment B and the northern bald eagle could use the rock outcrops in Segment B and the tall trees throughout the corridor for nest sites.

These diverse habitat types and the remote character of the river canyon provide an area which serves as a very effective connectivity corridor between habitats above the canyon rims and between the high alpine areas in the northern portion of the watershed and the desert areas to the south of the national forest. The river system, stretching over 20 miles and connecting the Great Basin and Blue Mountain ecosystems, allows for genetic dispersal across life zones. It is considered

exceptional when compared with other rivers within the region of comparison, though some rivers, like the Silvies and Malheur sit in similar positions between the provinces.

The river provides a high quality fishery which supports osprey and other fish predators, particularly in Segment A. Most of the meadow areas are also located in this segment, as it is generally a glacial valley with a wide floodplain rather than a narrow, constrained riparian zone within a deep canyon, as in Segment B.

Segment B is the most diverse, as steeper slopes and talus/boulder habitat is added to the river environment here. Habitat edge in this segment provides some of the most productive habitat found anywhere within the region of comparison. In general, dry, west-facing slopes provide grass/shrub habitats. East slopes are generally dominated by trees with occasional areas of talus and boulders. The riparian areas associated with the river provide connectivity between the two aspects.

Mature stands of climax ponderosa pine trees, intermixed with species such as grand fir and Douglas fir within the corridor, provide essential habitat for species that associate with old growth. Of the 7,034 acres within the corridor, there are approximately 3,400 acres of habitat meeting the current Regional definition of old growth. Some of these stands are experiencing moderate to severe mortality due to insects and disease infection, and are rapidly changing. It is expected that some of these stands will not meet the Regional old growth definition in a few years as conditions within them change.

Though no threatened or endangered species are known to continuously inhabit the river corridor, potential habitat exists for at least two of these species: the peregrine falcon and Northern bald eagle.

Finding

Populations of wildlife are not unique to the region of comparison but are extremely diverse and unique in the high numbers of species present within the corridor. There are no known threatened or endangered species documented within the river corridor. Wildlife populations are a significant value within the river corridor, but are not determined to be outstandingly remarkable values.

The wildlife habitat within the corridor is extremely diverse and of exceptionally high quality, particularly in Segment B. The river corridor provides important connectivity between habitats found on either side of the canyon rim and between habitats in the uplands and lowlands in this Blue Mountain/Great Basin interface. Few rivers within the region of comparison provide as much diversity of habitats within a relatively undisturbed, unroaded, long river canyon, as found in the lower half of the designated river. Wildlife habitat is determined to be an outstandingly remarkable value.

HISTORIC AND PREHISTORIC

Criteria for Outstandingly Remarkable

The river, or area within the river corridor, contains a site(s) or feature(s) associated with a significant event, an important person, or a cultural activity of the past that was rare, unusual, or one-of-a-kind in the region. A historical site is, in most cases, 50 years old or older. Of particular

significance are sites or features listed in, or eligible for inclusion in, the National Register of Historic Places.

The river or area within the river corridor contains a site(s) where there is evidence of occupation or use by native Americans. Sites must be rare, one-of-a-kind, have unusual characteristics or exceptional human interest(s) values. Sites may have national or regional importance for interpreting prehistory; may be rare and represent an area where a culture or cultural period was first identified and described; may have been used concurrently by two or more cultural groups; or may have been used by cultural groups for rare or sacred purposes. Of particular value will be pristine sites that have not been disturbed.

Evaluation of the Present Situation

HISTORIC

The river corridor and areas above the canyon rim were used in the late 1800s and early 1900s for raising livestock, primarily sheep and cattle. Twelve historic sites have been recorded within the corridor.

Two of these sites are campsites of unknown association. Two sites are carved aspen trees, presumably related to early sheepherder camps. Two are trail segments with tree blazes estimated to be between 62 and 100 years old. One log trough and one wooden cattle guard have also been recorded.

The North Fork Cow Camp in Segment A has been used continuously since the early part of the 20th century. It consists of a pole corral, cabin, and two outbuildings, and may be eligible for the National Register of Historic Places. One site is a portion of a 76-mile Forest Service telephone line, which is judged eligible for the National Register.

The river canyon was a barrier to transportation in the late 1800s. Crane Creek Crossing, in Segment B, is where the Douglas-Howell Toll Road, built in the 1860s, crossed the river. This wagon road was later incorporated into The Dalles Military Road. The Creighton Road of the 1860s and 1870s branched off the toll road at this crossing. These roads were instrumental in the settlement and development of southeastern Oregon, and are eligible for the National Register. Approximately 1 mile of each road is within the river corridor.

The river corridor was contained within the Malheur Indian Reservation which was established in 1872. Following the Bannock War of 1878, which resulted in the removal of the Indian inhabitants from the reservation, the reservation was restored to the public domain in 1882.

PREHISTORIC

The river corridor was used for hunting and fishing in prehistoric times. Seventeen prehistoric sites have been recorded within the river corridor, of which fourteen contain stone tools and flakes (lithics) from the manufacture of tools. These sites may have served as hunting and fishing camps and source for raw materials for tool making. One lithic scatter is large and probably was used extensively, perhaps for many years. Another one also contains a historic log trough. Two sites are trees from which the cambium layer was peeled for food. The last is a single petroglyph.

Projectile points from these sites have been identified as Cascade, Eastgate and Desert Sidenotched series, which indicates their occupancy during the Middle and Late Archaic periods. Fifteen of these sites are considered eligible for nomination to the National Register of Historic Places because of their potential to yield important prehistoric information. The river undoubtedly served as a travel corridor between the southern Blue Mountains to the north and the Harney Basin.

Finding

Though the river corridor contains three known National Register eligible historic sites, it is not rich in locations where significant events, important people, or rare, one-of-a-kind cultural activities are known to have occurred. Although the historic roads which cross the river at Crane Creek Crossing are very significant locations, they are not exclusively river-related values.

A cultural resource survey of the river corridor has just been completed. Though fifteen recorded prehistoric sites within the river corridor are considered eligible for nomination to the National Register of Historic Places, the fourteen lithic scatters are similar to many lithic scatters found throughout the general area. Until subsurface recovery of artifactual materials is conducted and more study is made, these sites will remain of undetermined significance. The one petroglyph is a rare site for the region of comparison.

The historic and prehistoric resource values of the North Fork Malheur River are not determined to be outstandingly remarkable values.

TRADITIONAL USE/CULTURAL VALUES

Criteria for Outstandingly Remarkable

The river, or area within the river corridor, contains a regionally unique location(s) of importance to Indian tribes (religious activities, fishing, hunting, and gathering). Locations may have unusual characteristics or exceptional cultural value, being integral to continued pursuit of such activities. Locations may have been associated with treaty rights on ceded lands or activities unprotected by treaty on ceded lands or in traditional territories outside ceded lands.

Evaluation of the Present Situation

There is limited information about traditional uses and cultural values associated with the designated portion of the North Fork Malheur River. The general area is known to have been used by the Northern Paiute, Umatilla, Cayuse, and Warm Springs groups in historic times. The river corridor was contained within the Malheur Indian Reservation until 1882.

Fishing for salmon, steelhead, and native trout, hunting, and gathering plant materials for food and fiber is thought to have occurred within the river corridor. With the construction of the Agency Dam (Beulah Reservoir), downstream from the designated river in 1935, migration of anadromous fish was blocked. The Burns Paiute Tribe, the Confederated Tribes of Warm Springs and the Confederated Tribes of the Umatilla Indian Reservation have been unable to document important cultural values or use-areas within the river corridor.

Finding

Regionally unique locations of traditional use or cultural activities are not known within the North Fork Malheur River corridor. No locations of importance to Indian tribes have been identified along the river or within the river corridor. Traditional uses and cultural values are determined not to be outstandingly remarkable values for this river.

HYDROLOGIC/WATER QUALITY

Criteria for Outstandingly Remarkable

The river has exceptionally pure, clean, and/or clear water. The river is known for its water quality regionally or nationally. The river provides, or has the potential to provide, exceptionally high water quality for a variety of beneficial uses including, but not limited to, fish and wildlife, recreation, and communities. The river, or the area within the river corridor, contains an example(s) of a hydrologic feature, process, or phenomena that is rare, unusual, one-of-a-kind, or unique to the geographic region. The feature(s) may be in an unusually active stage of development, represent a "textbook" example and/or represent a unique or rare combination of hydrologic phenomena (large aquifers, springs, or other features).

Evaluation of the Present Situation

HYDROLOGIC

Tributary drainages in the upper portion of the North Fork are the primary sources of water for the river. East-flowing streams such as Elk Creek, Swamp Creek, and others which originate in high glacial basins to the west of the North Fork in Segment A, provide abundant flows of cool, clean water. Streams such as Spring Creek also provide good flows in the spring and early summer. However, lower amounts of snow accumulation and shallower soils prevent these streams from contributing as significantly to late summer flows.

A large complex of hillside springs at about 6,100 feet elevation on a west-facing slope below the Big Cow Burn of 1939 provide significant flows, resulting in an extensive area of riparian vegetation which extends over 400 feet from the springs down to the river.

Most of Segment A is characterized as a large glacial valley with deep ashy loam soils. These soils are highly infiltrative, and because of their great depth, are capable of storing large amounts of water. As a result, the sloping wetlands adjacent to the floodplain contribute significantly to late summer flows of the river. Hyporheic habitat may be present in these wetlands where high gravel contents are concentrated.

In Segment B, the basin narrows into a confining canyon and the floodplain narrows rapidly until it becomes little wider than the river itself. Occasional benches occur, but do not alter the confined nature of the river. With the exception of some localized wetlands at the confluences of the largest tributary streams, riparian vegetation is limited to the river's edge and along the tributary streams. These streams and other drainages in this segment generally reflect the lower elevation watersheds which they drain. Less precipitation results in little contribution of flows, except during storm events and during the spring.

The hydrologic processes in both segments, though important to the functioning of the river and ecosystems dependent on it, are common in the Blue Mountains and even in some higher elevation streams in the Basin and Range geographic province.

WATER QUALITY

Despite several recent large wildfires, timber sales, and other disturbances in the watershed, water quality in the North Fork remains high. Favorable landforms and soil types result in relatively low levels of sediment transport into the river and low turbidity levels.

Water temperatures in Segment A remain low throughout the year. Water temperature is considered to be a limiting factor for one species of fish, the bull trout, a sensitive species found in the river. Due to the north-south orientation of the river, shading is generally limited to riverside vegetation during the hottest times of the day. As the water flows downstream it becomes warmer. Since there are few springs, or perennial streams with enough volume to add cool water to the river in Segment B, temperatures reach critical levels for most cool-water-dependent fish, sometimes exceeding 70 degrees F.

Finding

The hydrologic features of the North Fork Malheur River, though significant for river function, are commonly found in the region. Water quality of this river is similar to many other rivers within the region of comparison and is of high, but not exceptional quality. **Hydrologic values and water quality are determined not to be outstandingly remarkable values, but are significant values which contribute to the river ecosystem.**

BOTANY/ECOLOGY

Criteria for Outstandingly Remarkable

The river, or river corridor, contains nationally or regionally important populations of indigenous plant species. Of particular significance are species considered to be unique or populations of federally listed or candidate threatened and endangered species. Additional factors such as diversity of species, numbers of plant communities, and cultural importance of plants may be considered.

Evaluation of the Present Situation

The North Fork Malheur River exhibits a diversity of plant habitats. Over 500 species of plants have been identified within the river corridor. Fire suppression and grazing by domestic livestock have radically changed the species composition on many sites over the last 50 to 75 years, but the area still exhibits rich floristic characteristics. The climate patterns are generally similar to both the Great Basin and interior west. Summers are hot and dry with high-intensity convective storms and short duration showers in July and August. Winters are typically cold with moderate snowfalls. Most effective moisture comes from snow and spring rains. The river corridor reflects both Blue Mountains and Great Basin plant communities.

Segment A of the river ranges from 5,600 to 4,600 feet in elevation. The orientation of the river in this area is generally north-south, and is characterized by a typical U-shaped glacial valley with a wide floodplain. In general, this segment supports plant associations which depend upon cool and moist conditions.

Upland associations are typically Douglas fir/pinegrass on the drier west and south facing slopes, and grand fir/pinegrass on more mesic aspects. A few climax ponderosa pine associations occur in isolated stands throughout this river segment. As in many other areas of the Malheur National Forest, tree growth is often limited by shallow soils and other soil characteristics. Some soils in the corridor are predominately derived from ash which fell during the eruption of Mount Mazama around 6,500 years ago.

Effects of the Big Cow Burn of 1939 and subsequent reforestation dominate the vegetation in the upper reaches of the river and the uplands outside the corridor. Lodgepole pine is the predominate tree here, growing on grand fir/grouse huckleberry sites.

Several areas adjacent to the river corridor are managed for old-growth values. One of these, in Dugout Creek, is being considered as a Research Natural Area because of the exceptional quality of the grand fir/elk sage association present.

Meadows are common along the floodplain in this segment due to the wide floodplain and low stream gradients. These meadows support very complex plant communities with great botanical diversity. Lodgepole pine, grasses, forbs, and sedges dominate different areas, mostly dependent upon available moisture and soil depth.

Riparian vegetation is generally dominated by alder/currant/graminoid plant associations. A blight infected the alder several years ago topkilling many of the plants which are now resprouting from basal buds and recovering. Flowering forbs such as monkeyflower, bog-orchid, and willow-herbs are found along tributary streams, seeps, and springs within the corridor.

The vegetation in Segment B is typically characteristic of warmer, drier conditions. The river runs through a more pronounced canyon environment with steeper slopes and a narrow floodplain. It is also oriented north-south, although several east-west reaches occur. Narrow benches above the river are common but meadows are rare. Elevations range from 4,600 to 4,200 feet.

The predominant plant association is big sagebrush/bluebunch wheatgrass, typically on dry west aspects. Talus slopes are common and support shrubs such as chokecherry and wax currant. Isolated clumps of Douglas fir and ponderosa pine are found on west aspects where moist micro-sites and draws occur.

East aspects are generally more mesic, and Douglas fir/birchleaf spirea/pinegrass are common. Many large ponderosa pine trees occupy these sites. The presence of serviceberry in the shrub communities on talus slopes reflects the more moist conditions.

Riparian zones in Segment B are generally narrow, ranging in width from 50 and 200 feet. They are dominated by mountain alder and red osier dogwood with an understory of various currant species and grasses. Mock orange, roses, and chokecherry are found in the lowest elevations near the southern part of the corridor, where conditions are the hottest and driest.

Small meadow types occur along the river banks and on gravel-bar islands. These features receive disturbance from regular flooding and provide interesting opportunities to view early successional processes. Wild mint, horsetails, willow-herbs, small-fruited bullrush, wooly sedge, and managrasses are predominate species on these sites.

There are no known threatened, endangered, or sensitive species known to inhabit the corridor. Although plants within the river corridor were probably of cultural value to pre-historic and historic peoples, there is little known about the importance or locations of areas where collections were routinely made.

Finding

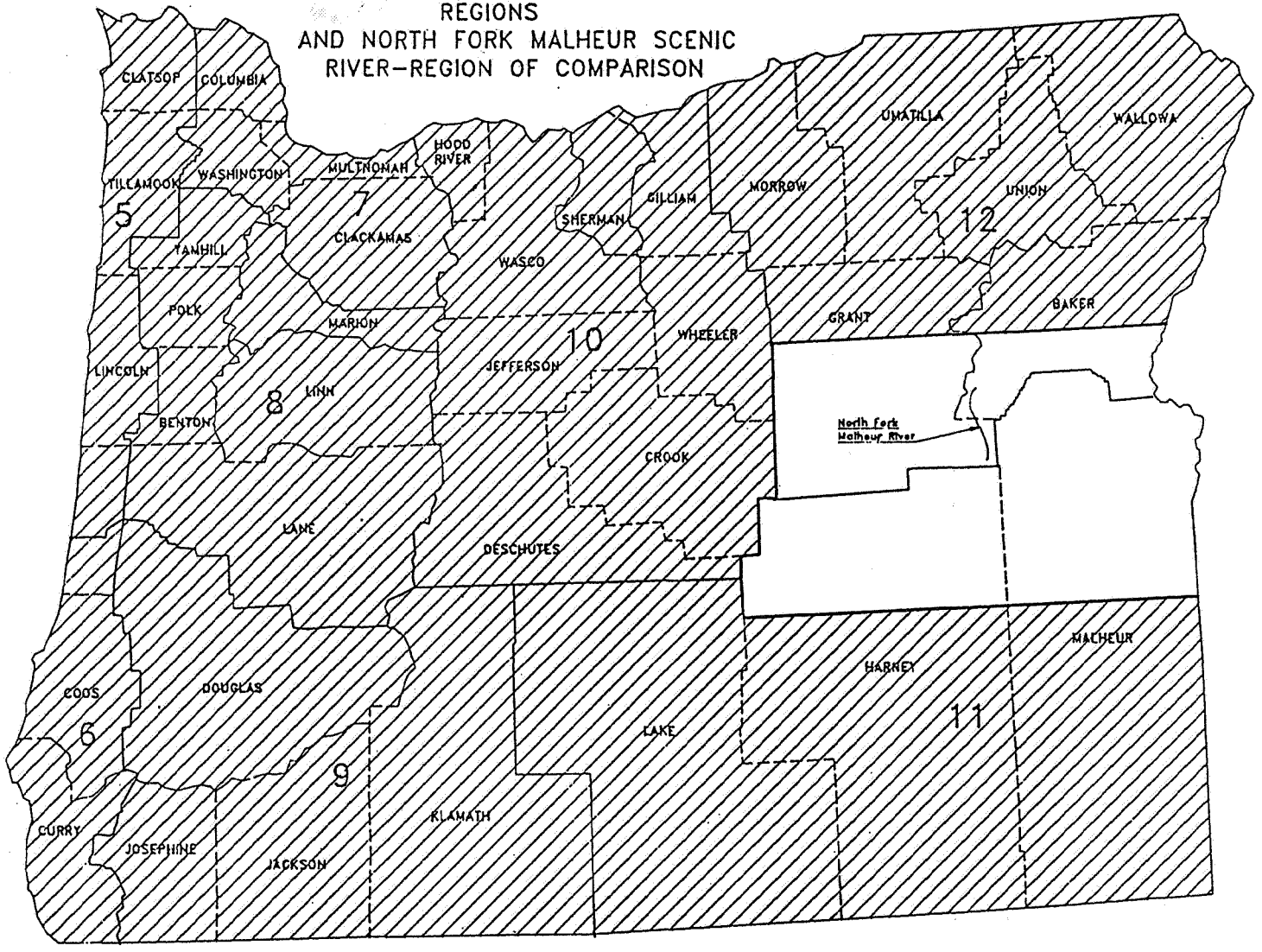
The North Fork Malheur River is an area with great species richness and many different habitat types. It is typical of many rivers and streams flowing southerly into the Great Basin Province from the Blue Mountains. The botanical and ecological values are common, as they are found in other basins in the east-central Oregon area. No regionally important populations of species or communities are known to inhabit the river corridor. **Botanical and ecological values are not determined to be outstandingly remarkable.**

APPENDICES

APPENDICES

VICINITY MAP

OREGON SCORP PLANNING
REGIONS
AND NORTH FORK MALHEUR SCENIC
RIVER–REGION OF COMPARISON



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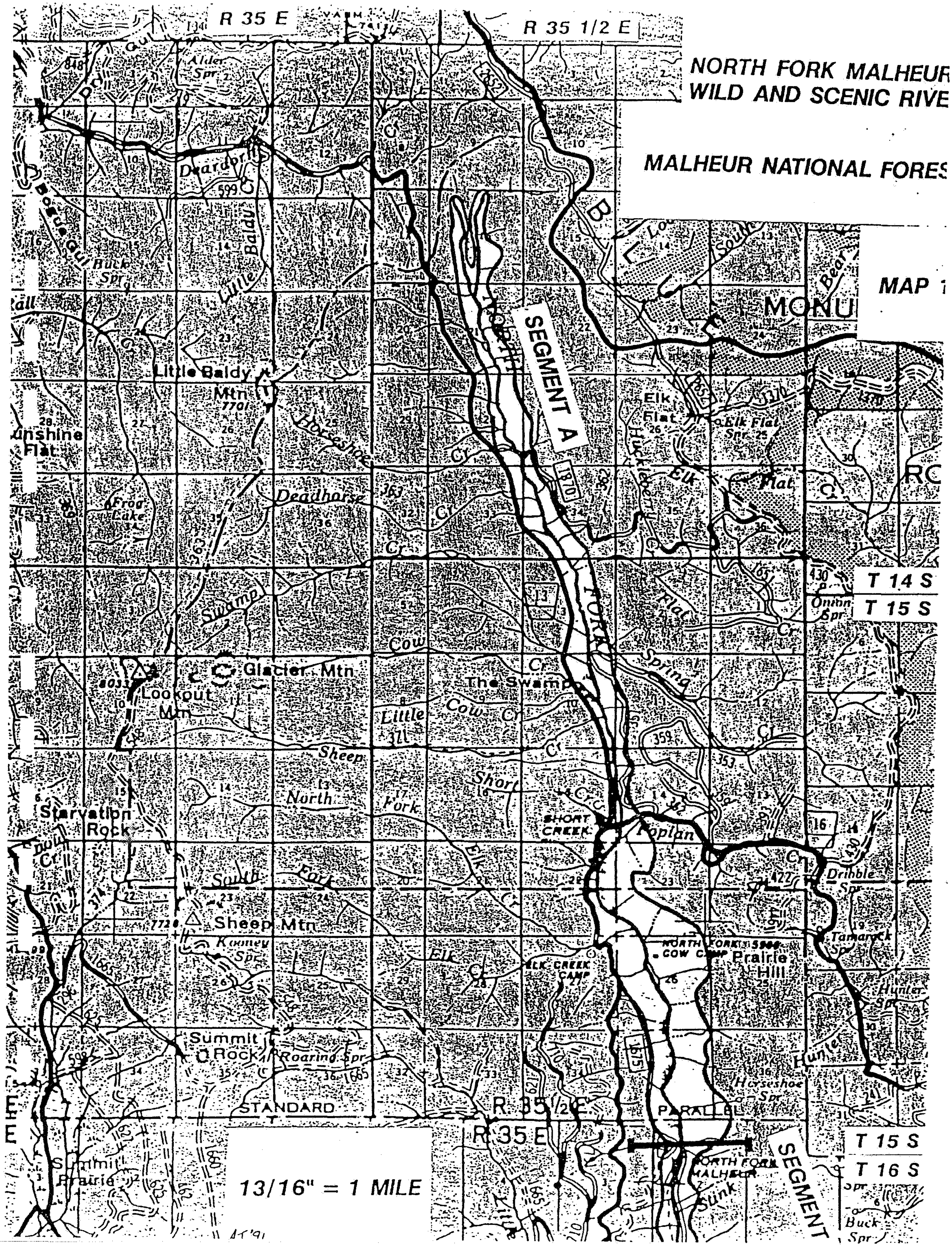
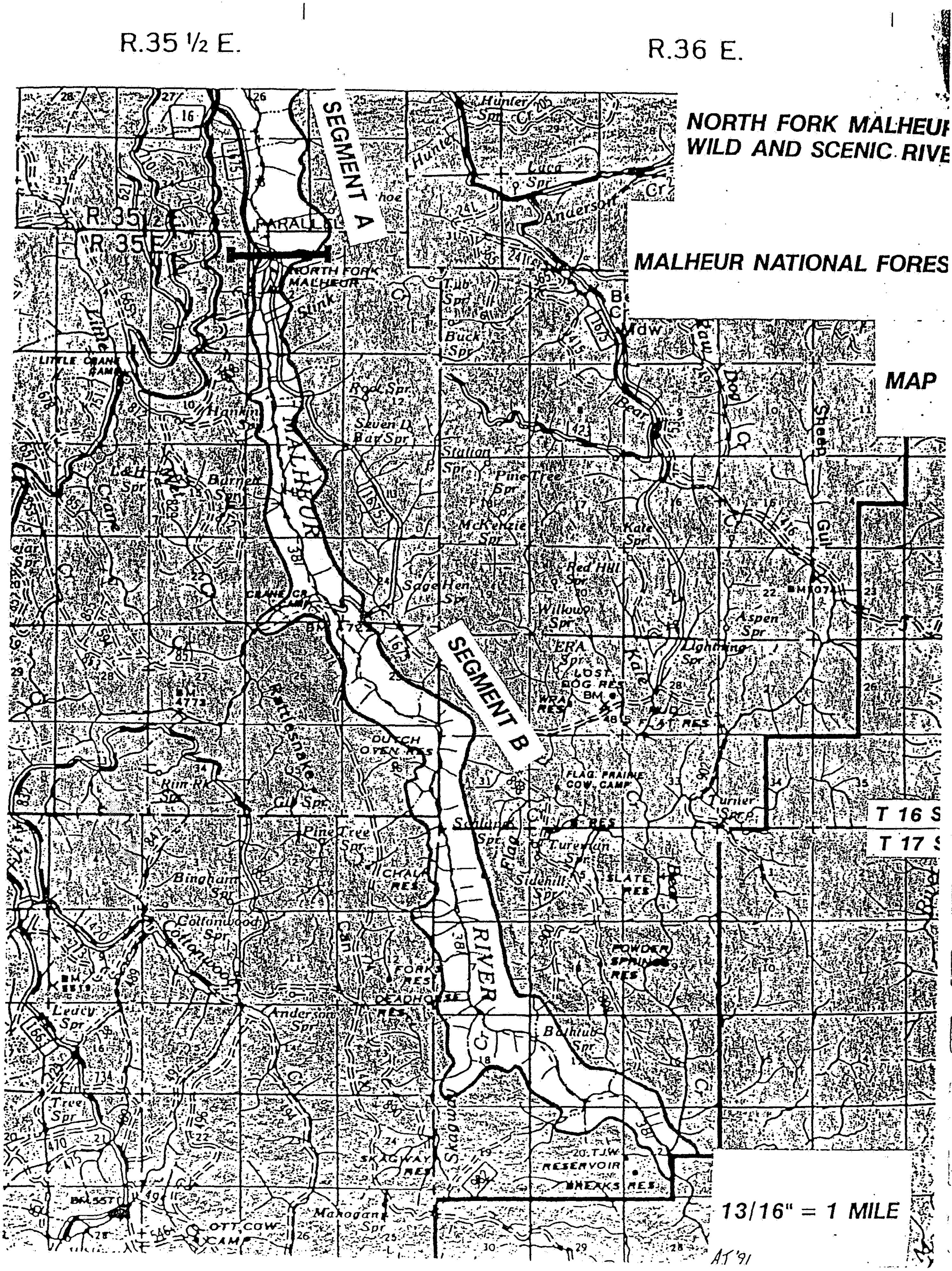

NORTH FORK MALHEUR
WILD AND SCENIC RIVE
MALHEUR NATIONAL FORES
MAP 1
R 35 E
R 35 1/2 E
SEGMENT A
T 14 S
T 15 S
T 16 S
SEGMENT
Little Baldy Mtn
Glacier Mtn
Lookout Mtn
Starvation Rock
Sheep Mtn
Summit Rock
Summit Prairie
The Swamp
SHORT CREEK
Prairie Hill
NORTH FORK COW CAMP
ELK CREEK CAMP
NORTH FORK MALHEUR
Elk Flat
STANDARD
PARALLEL
13/16" = 1 MILE


R.35 1/2 E.
R.36 E.
NORTH FORK MALHEUR
WILD AND SCENIC RIVE
MALHEUR NATIONAL FORES
MAP
SEGMENT A
SEGMENT B
MALHEUR
RIVER
T 16 S
T 17 S
13/16" = 1 MILE
AT '91

NORTH FORK MALHEUR RIVER
Visual Resource - Technical Report

Prepared By
Stephen Keegan
Landscape Architect

Upper Portion, from the Headwaters to Elk Creek

The river corridor begins at the head of a large, relatively flat, valley. Landforms are gently rolling with little dissection and no dominant features. Rockforms are small and infrequent. Vegetation is comprised primarily of lodgepole pine and grasses with few openings or patterns in the foreground, and mixed species of trees in the middleground. Past fire activity has created a continuous blanket of even aged lodgepole pine at the upper end of the valley. Meadows and other openings along the river are infrequent. The river has little diversity in the form of falls, pools, rapids, or meanders.
Views along this segment are limited to the river, vegetation, and the surrounding hills; views of the middleground are few. Access for recreationists is readily gained by numerous "jeep trails" that parallel the river, or by a short walk from the 13 or 16 Roads which parallel or cross the river. Human alterations are evident in the form of the "jeep trails", paved roads, and a firefighting station (structures) at the junction of the 13 and 16 Roads, and a bridge crossing the river at Elk Creek. This portion has a Common Variety Class.

Middle Portion, from Elk Creek to Crane Crossing

The river meanders thru grassy meadows and the floodplain gradually narrows into a shallow, steeper walled canyon. The river has a lot of diversity in the form of riffles, quiet water, and meandering stretches. The landforms are rolling and moderately dissected. Rockforms are more evident in the form of outcrops, boulders, and rock covered slopes.
The surrounding vegetation is diverse but dominated by large diameter ponderosa pine tree groups. These ponderosa pine present a dominant color, contrasting with the background vegetation, and reflecting in the calmer/slower water. There are numerous meadows that break up the vegetation and provide opportunities for panoramic views of the surrounding middleground.
Access for recreationists can be gained by walking a 1/4 to 1/2 mile distance through the vegetation from the 16 Road, driving along the road from North Fork (N.Fk.) Bridge (by the N.Fk. Campground) to the north end of the N.Fk. Trail, and by walking down the N.Fk. Trail. Human alterations are evident in the form of forest management practices (one thinning unit within the foreground), N.Fk. Bridge and Campground. This portion has a Distinct Variety Class.

Lower Portion, from Crane Crossing to the Forest Boundary

The river, increasing in size, continues on through a gradually deepening canyon. The river, comprised mainly of riffles, has boulders and occasional pools in this segment, that have not been present in the other segments.

Landforms become much steeper, and much more dissected. Rockforms are extremely diverse with boulders, talus slopes, outcrops, some chutes and cliffs. Many of the formations of loose/broken rock extend down to the waters edge. In addition, there is a variety of color (black, brown, gray, and some green) in the various rockforms. The vegetation is dominated by large diameter ponderosa pine, larch and douglas fir, while willows, scattered aspen, and shrubs are also present. The high eastern slopes, near the top of the canyon, include scattered juniper, scrub pine and sage brush. The ponderosa pine's old growth characteristic of orange-brown colored bark, provides an outstanding contrast to the surrounding vegetation and reflects in the slower, smoother water. The large rock formations, loose/broken rock, and grassy slopes provide contrast, and have created a great deal of variety, to the vegetative patterns in the landscape.

Viewpoints are from the N.Fk. Malheur River Trail (paralleling this entire portion). Access is limited to Crane Crossing and the south trailhead. While the North Fork trail provides access and viewing opportunities to the river, it is heavily used by cattle through range management. This has resulted in significant structural damage to the trail. In addition, it is common to met cattle along the trail during the grazing season. Once the cattle are frightened, they continue on down the trail a short distance in front of the hikers; this tends to detract from the visual experience of hiking along the trail. Human Alterations are evident in the form of fences and the road at Crane Crossing, but most of this portion is undisturbed. This portion of the river has a Distinct Variety Class.

Recreation of the North Fork Malheur River

by

Carole Gillespie, Recreation Forester

August, 1991

The North Fork Malheur River corridor provides a wide variety of recreational opportunities. Based on field observation and informal use records, North Fork Malheur River receives a considerable amount of use beginning as soon as the snow melts and continues into the late fall hunting season(s). A large portion of the visitors are from the local area, although many visitors come from outside the geographical area, primarily during hunting season. In the majority of this case, the river and its related values are not the primary attractions for these hunters.

Along with hunting use, visitors travel to this area for fishing, camping, backpacking, horseback riding, photography, picnicking and nature study.

Dispersed camping associated with hunting and fishing is by far the heaviest use evidenced by numerous dispersed camps within the corridor. Some of the anglers using this river come from out of the region to catch stocked rainbow and native trout. The hiking aspect of the fishing use in the reach from Crane Crossing Camp south is an important aspect of their experience.

Winter sports opportunities are most numerous in the upper reaches of the North Fork River corridor. Designated, groomed snowmobile trails cross the river and parallel the river along Forest Road 13; however the attraction is less the river than the road locations. Cross-country skiing use is limited in the entire reach due to distance from the nearest access point.

The majority of the river (ROS Class Roaded Natural) is acessible by paved or gravelled road, or by trail. Forest Road 13, a main travel paved way, parallels the river for approximately 4 miles. Forest Road 1674, a good quality gravel road, parallels the river from it's junction with the FS 16 road to the North Fork Malheur River trailhead. The river is also accessed by the 774 road off of the 1674 road, where it crosses the river at Crane Crossing Camp. The southern trailhead for the North Fork Malheur trail #381 is accessed by Forest Road 1420982.

The unroaded 8 mile section of the North Fork Malheur River (ROS Semi-Primitive Non Motorized) is paralleled by the North Fork Malheur River trail # 381, providing anglers, hikers and hunters access from early spring to late fall. Access to this trail is currently limited to horse, hiker and bicycle use - motorized use is closed by a CFR order signed by the Forest Supervisor.

Elk Flat Trail #362 also has it's trailhead within the river corridor, however, it does not provide additional access to the river beyond where the trail crosses it.

Recreation developments in the corridor are fairly limited and generally primitive in design. North Fork Campground is the only campground within the corridor that provides a developed camping experience. Crane Crossing Camp provides a more primitive camping experience, with toilets and picnic tables provided.

Dozens of dispersed camping areas in the river corridor receive light to moderate use, providing a base for summer and fall recreational pursuits. There are three trailheads for the North Fork Malheur River trail; the main trailhead and the trailhead located at Crane Crossing Camp are minimally developed providing a limited amount of parking and informational signing. The southern trailhead is undeveloped. The trailhead for Elk Flat Trail is also undeveloped. Elk Creek Campground is a developed campground located immediately adjacent to the designated river corridor that provides additional developed recreational opportunities.

A variety of recreational improvements have been identified in the Forest Plan for upgrading the existing facilities. North Fork Malheur campground has been identified for re-construction in 1994. This may include development of a potable water source and development of camping opportunities for the physically-challenged visitors and their families. The North Fork Malheur trail, along with 2 trailheads, are also scheduled for reconstruction/ construction activities during the same timeframe. There are opportunities to increase the types of recreation experiences in the corridor that could potentially attract visitors from outside the geographic region and enhance their recreational experiences.

United States Department of Agriculture | Forest Service | Malheur NF

Reply to: 2350 WILD AND SCENIC RIVER PLANNING Date: May 24, 1989

Subject: GEOLOGY OF THE NORTH FORK MALHEUR RIVER

To: PLANNING FILES

The Wild and Scenic portion of the North Fork of the Malheur River follows the North Malheur Fault from its headwaters to a point about 1.5 miles south of the Short Creek Guard Station. South of this point, the North Malheur Fault diverges into a series of roughly parallel faults that trend south-southeast. In this section, the river channel continues along the edges of, or through the interior of a downthrown block (graben) area that lies between two of these faults.

The bedrock materials along the entire river section consist of Miocene- to early Pliocene-age volcanic flow rocks of the Strawberry Volcanics Formation. From a point beginning about 9 miles north of the Short Creek Guard Station, continuing downstream for a distance of about 5 miles, the river channel passes through areas where glacial moraine deposits and other alluvium have been deposited on top of these bedrock materials.

The source of the lavas that form the Strawberry Volcanics Formation included several shield volcanos and numerous smaller vents in the vicinity of Strawberry and Lookout Mountains. The volcanic activity included a long series of eruptive events, with the most intensive period of activity occurring between 12 million and 15 million years ago. During this period, the area was undergoing tectonic extension forces, literally pulling the surface apart in east and west directions. These tensional forces resulted in cracks, faults, and fissures, through which the lavas were extruded.

The combined activity has resulted in a series of essentially horizontal lava flows layered on top of one another. The individual layers rarely exceed 40 feet in total thickness, and they are typically separated by relatively thin 'interflow' layers composed of scorched soils, volcanic ash, and rock materials incorporated into the base of the fluid lavas.

The rock in these flows ranges from fine- to medium-grained basalt and basaltic andesite. The rocks are usually medium- to pale-grey in color, but they are commonly streaked or mottled with lighter grey, green, and reddish brown mineral concentrations. Some of the flows have a massive columnar structure, with columns of up to 8 feet in diameter. The columnar structure results from the cooling/shrinkage cracks that developed perpendicular to the flow surface. Other flows developed a distinctive platy texture, with individual plates ranging from about 1/2 to several inches in thickness. The platy jointing probably results at least partially from flow laminations derived from shear failures during movement. Many outcrops exhibit some of both textures, and have platy materials near the top of the flow, and become more massive with increasing depth.

These volcanic materials are best exposed where the river has carved the deepest canyon, so the best exposures are found along the steep canyon walls south of the Crane Creek Ford. Total relief from the top of the canyon to the river level at any one site in this section ranges from about 250 to about 750 feet. Some of the more prominant features along this section include rock outcrops, talus slopes, and areas above and adjacent to the river channel that have relatively flat slopes resulting from mass wasting or slope failures.

In some areas the outcrops form vertical or near vertical cliffs as high as 50 feet. In others, differential weathering has creating pinnacles and windows or small arches through portions of the outcrop. Along the downslope margin of many outcrops, some of the columns or other large blocks of rock have cracked and tilted and/or slipped away from the main outcrop. Massive talus slopes exist at the base of or below most of the outcrops. Some of the larger talus slopes extend for several hundred feet or more down the slope, and the base of many of them extends into the river bed. Some of the smaller talus chutes extend from the top of the canyon walls all the way to the river bed. Many of these talus slopes probably have considerable materials movement each year, particularly those where the river is actively eroding material from the base of the deposit.

The mass movement deposits or slope failure areas range from relatively small to greater than 40 acres in size. These have occurred where the river has undercut the side of the canyon until it became unstable enough to slump or fail as a large block of material. In some areas these slide deposits were massive enough to have buried the old river channel, and forced the river over against the side of the opposite canyon wall. In these areas the river channel direction changes abruptly, often at nearly a right angle. Some of the changes in channel direction could result from differences in the erosion resistance of the local bedrock materials, but most of the larger ones are the result of massive slope failures.

Mark Lysne

MARK LYSNE

GEOLOGIST

NORTH FORK MALHEUR RIVER

DRAFT
FISHERIES INFORMATION FOR
RESOURCE ASSESSMENT

Richard Gritz
Forest Fisheries Biologist

The North Fork Malheur River is an important recreational fishing area, both locally and regionally. Game fish found in the Malheur River within the Wild & Scenic River designation include native redband trout, Oncorhychhus sp, hatchery rainbow trout, O. mykiss, bull trout, S. confluentus, and mountain whitefish, Prosopium williamsoni.

FISH SPECIES/FISHERIES

The name redband has been applied to several races of inland rainbow trout. Electrophoretic analysis indicates that this large group of fish is distinct from the coastal rainbow trout, but populations also differ significantly enough from one drainage to another to be considered separate subgroups. In 1981, redband trout from the Malheur (Wolf and Bear Creeks) and Silvies drainages were examined using electrophoresis and histochemistry (Gall et al. 1981). The conclusion was that these populations have a high probability of being genetically distinct from each other. They share a common ancestry with wild rainbow from the McCloud and Goose Lake systems, but also have unique characteristics. Determining their status awaits further genetic analysis.

The catch rate of trout in the North Fork is high, but most of those caught are small. Investigations of the biological characteristics and life history of redband trout in southeast Oregon (Kunkel 1976; Hosford and Pribyl 1983; Pribyl and Hosford 1985) indicate that in a stream environment they usually mature by the third or fourth year of life at a small size and then die following spawning. Creel surveys done in 1989 indicated that 92% of the trout over 8 inches long caught in the North Fork were of hatchery origin. This seems to be consistent with the expectation that most of the wild redband trout do not get very large.

Yearling hatchery rainbow trout (Cape Cod stock) have been planted in the upper Middle Fork, North Fork and Little Malheur Rivers on National Forest land, near Forest Road 16, since the mid 1950s. Historic total stocking was about 6,000 fish per year. In 1990, ODFW completed the Malheur River Basin Fish Management Plan. One of the goals identified in that plan is "protecting and enhancing indigenous fish, specifically bull trout and redband trout." To address this goal, while maintaining a viable recreational fishery, stocking levels were reduced to: 1100 fish to the Middle Fork at the Malheur Ford, 1100 fish to the North Fork at the North Fork Campground, and 800 fish to the Little Malheur at the 16 Road.

Some mountain whitefish are also taken in the recreational fishery, but most of the catch of this species is incidental to trout fishing.

Bull trout, Salvelinus confluentus, are found in several headwater tributaries and in the main North Fork. Because of the dams constructed downstream on the North Fork and the Middle Fork, the populations of these two subbasins are now reproductively isolated. Some bull trout have been taken in the recreational fishery on the North Fork over the years. Bull trout populations throughout eastern Oregon have been declining. Drought conditions in recent years have exacerbated this problem. In response, in 1990 the Oregon Dept of Fish and Wildlife (ODFW) placed an emergency closure on the taking of bull trout. It is expected that this closure will be incorporated into the next set of State fishing regulations.

Bull trout and redband trout are listed as Category 2 species under the Threatened and Endangered Species Act (U.S. Fish and Wildlife Service 1985). This means more information is needed on these species before a determination of threatened or endangered status can be made. They are also on the Regional Forester's (Region 6) sensitive species list.

Prior to construction of reservoirs, the Malheur basin supported runs of chinook salmon, Oncorhychhus tshawytscha, and steelhead trout, O. mykiss. The Agency Valley Dam (Beulah Reservoir) dam on the lower North Fork Malheur River, which was constructed in 1935, ended anadromous runs into this river. Brownlee Dam, which was constructed on the Snake River in 1958, ended migration of anadromous species to the entire upper Snake River basin (Pribyl and Hosford 1985).

Another anadromous species that may have been present historically in the Malheur River basin is the Pacific lamprey eel, Entosphenus tridentatus. It is known to have existed in the Owyhee and Snake Rivers.

There are no known "usual and accustomed" fishing sites within the Wild & Scenic portion of the river. See the Traditional Use/Cultural Values section for discussion.

A fish species list for the Wild & Scenic portion of the North Fork Malheur River is included in Appendix A.

FISH HABITAT

For the purpose of general discussion, I will break down fish habitat into three major components: water quality, food, and physical habitat structure. We do not have much quantified field survey data to base this description on, so much of the description will be based on general observations of biologists and others who have worked in the area and/or fished the river. A physical habitat survey has been completed, but the data from that survey has not yet been summarized and analyzed. That work will be done this fall and winter.

Water quality in the North Fork Malheur River can be generally described as good. This is based at least in part on the fish species composition in the river. Bull trout are very sensitive to water quality conditions. They require cold water and seem to be quite sensitive to sedimentation. The presence of bull trout, the relatively low numbers of cyprinids (minnows) and catostomids (suckers), and the absence of the warm water game fish common in

lower reaches of the river, indicate that water quality in this portion of the river is good year around.

Water temperature does increase as the river flows through the Wild & Scenic area. This could be partially mitigated by providing for more woody riparian vegetation, which could provide partial shading of the river. Because of the width of the river and it's general north-south orientation, only a portion of it could be shaded, but there is some potential for improvement due to management.

Food does not appear to be a limiting factor for salmonids. We have not done quantitative sampling of macroinvertebrates in the river, but general observations are that the species composition and abundance of the macroinvertebrate community indicates good water quality and ample food for resident fish species. Mayflies, stoneflies and caddisflies are all common and abundant. The presence of the smaller cyprinids and cottids is also important for the diet of the bull trout, which is more piscivorous than the other resident salmonids.

The limiting habitat components appear to be those that provide physical habitat diversity. The river is limited in high quality pool habitat. Two factors which contribute to this are a lack of large wood in the channel, and a lack of stable undercut banks.

I am not sure what the reason(s) are for the low frequency of large wood in the river. The 1964 flood may have accounted for some of this, but without a pre-1964 stream survey, that would be difficult to verify. Common historical reasons for a lack of large wood in rivers include snagging for navigation, logging and the use of splash dams for log transport. We have not found records of any of these activities in the North Fork Malheur River. If the low frequency of large wood in the river is indeed a "natural" condition, we can probably do little in terms of management to increase this habitat component, without doing it artificially with engineered structures.

The lack of stable undercut banks can in many cases be attributed to historic livestock use of the river corridor. This can occur as a result of reducing the amount of woody vegetation along the streambank by browsing, or by physically breaking down the bank by walking on it. There is evidence of both situations occurring. There is a potential to improve this component of fish habitat with management.

/Richard Gritz/
Sept. 26, 1991

APPENDIX A
Fish Species List for the Wild & Scenic River Portion of the North Fork Malheur River:

Trouts--Family Salmonidae	
redband trout	Oncorhynchus sp.
rainbow trout (hatchery)	Oncorhynchus mykiss
bull trout	Salvelinus confluentus
mountain whitefish	Prosopium williamsoni
Minnows--Family Cyprinidae	
longnose dace	Rhinichthys cataractae
speckled dace	Rhinichthys osculus
redside shiner	Richardsonius balteatus
northern squawfish	Ptychoeilus oregonensis
chiselmouth	Acrocheilus alutaceus
Suckers--Family Catostomidae	
bridgelip sucker	Catostomus columbianus
largescale sucker	Catostomus macrocheilus
Sculpins--Family Cottidae	
mottled sculpin	Cottus bairdi

WILD & SCENIC RIVERS
NORTH FORK MALHEUR RIVER
PRAIRIE CITY RANGER DISTRICT, MALHEUR NATIONAL FOREST
AUGUST, 1991
James A. Nutt, Wildlife Biologist

I. INTRODUCTION:

The following paper is the Wildlife Resource Assessment (RA) for the North Fork Malheur River. The portion of the North Fork Malheur that will be reviewed lies within the Malheur National Forest, specifically the Prairie City Ranger District.

A. Purpose of the paper:

The purpose of the paper is to fully describe the wildlife resource values within the river boundary. The specific resource values that will be discussed will be: A) six main habitat types, B) species present and potential for species, C) contigious habitat conditions.

B. What is a Wild and Scenic River (W&SR)?

It is a river, or river segment, that has been designated by Congress or the Secretary of the Interior under the special provisions of the Wild and Scenic River Act (PL90-542) as part of the National Wild and Scenic Rivers System. To be eligible for designation, a river must be free flowing and contain at least one outstandingly remarkable value. Such values may include scenery, recreation, geologic, fish, wildlife, historic, or archaeologic features.

1. Scenic Designation:

The North Fork Malheur River has been designated as a scenic river. This designation was made under the Omnibus Oregon Wild and Scenic Rivers Act of 1988. This Act designated 40 river segments in Oregon for inclusion in the Wild and Scenic Rivers System and directed the Forest Service (USFS) and the Bureau of Land Management (BLM) to develop management plans for each river. These river management plans will be completed on or before October 1, 1992.

2. What are the differences between a Wild, a Scenic, and a Recreational river?

Segments of rivers designated in the W&SR System are classified as such depending on the extent of development and access along each section. The terms Wild, Scenic and Recreational refer to the degree of access and development along the river area.

Rivers or river segments classified as Wild are generally inaccessible except by trail and are essentially primitive. Scenic rivers are largely primitive and undeveloped but accessible in places by roads. Recreation rivers are readily accessible by road or railroad and have a greater degree of development along their shorelines.

C. Corridor Description:

Geology: This area is of volcanic origin from the Strawberry volcanics formation. Columnar structure is the dominant texture in the contemporaneous volcanic flows of the geographic region. Much of the Strawberry volcanics are a platy structure or texture is dominant. There are many talus slopes and rock outcrops throughout much of the corridor.

Vegetation: The North Fork Malheur river contain plant communities representative of the Blue Mountains sub-provence. The vegetation associated with this subwatershed consists of true fir and Douglas fir (Pseudotsuga menziesii) communities adjacent to the riparian zones. There is a mixture of ponderosa pine (Pinus ponderosa), lodgepole pine (Pinus contorta) and western juniper (Juniperus occidentalis) within the boundary on the uplands.

Wildlife: The river corridor contains important indigenous species, and provides quality habitat for numerous regionally important wildlife species such as rocky mountain elk, mule deer, black bear, pine marten, pileated woodpecker, and osprey. The corridor is providing a contigious migrational route for a variety of wildlife species.

II. DISCUSSION:

The following discussion will be divided in two main parts (sections A and B). Within each section significant habitat types have been identified, and will be briefly discussed. Old growth areas and riparian zones overlap both sections and will not be separated. Section "A": starts at the headwaters of the river located at T.16 S, R.35 1/2 E, Sec. 9, 16. and ends at Crane Creek crossing located at T.16 S, R 35 1/2 E, Sec. 23, 24. Section "B" starts at Crane Creek crossing and extends to the Malheur National Forest boundary located at T.17 S, R.36 E, Sec. 21. The discussion will be further broken into specific attribute and species discussion.

NOTE: These sections are not identical to the river corridor divisions made by the interdiscplinary team. The reasons for this are due to the dramatic changes in geomorphology, road density, accessibility to the river, and distinct in habitat types.

1. Section A:

Section "A" is providing two exceptionally high quality habitat types within the river corridor. High quality refers to habitat that is providing all requirements needed for the species.

The uplands are dense mixed conifer areas dominated by Douglas fir and pinegrass (Calamagrostis rubesscens) on the east side of the river (west aspect). The uplands on the west side of the river (east aspect) are dominated by grand fir (Abies grandis) and pinegrass, on both sides of the river the dominant shrub component is grouse huckleberry (Vaccinium scoparium).

The meadow areas are lush with a variety of graminoids, and shrub species. The meadows vary in width, from 50 feet and extending to 400 feet in width (smaller in total average size for section "B"). Lodgepole pine can be found along the edges of the meadows and occasionally in clumps in the meadows. Springs/seeps and boggy areas also can be found scattered throughout the meadows, adding to the visual beauty of the area. These meadows are providing bountiful habitat for many small mammals such as shrews, mice and voles.

Within the upper portion of section "A" the Big Cow Burn occurred in 1939. This burn encompassed approximately 35,000+ acres. This area is a mixed conifer plant community, but was originally reforestated with lodgepole pine.

2. Section B:

Section "B" is providing two exceptionally high quality habitat types within the river corridor. High quality refers to habitat that is providing all requirements needed for the species.

The east side (west aspect) of the river is providing a shrub/grass-forb ecotype. It has many talus rock slides, rock outcrops, small caves, and an occasional large trees such as ponderosa pine, Douglas fir, and western juniper. The shrub component mainly consists of choke cherry (Prunius virginianus), sagebrush (Artemisia spp.), and wax current (Ribes cereum).

The west side (east aspect) of the river is a mixed conifer site including Douglas fir, ponderosa pine and western juniper. The shrub/grass component mainly consists of birchleaf spirea (Spiraea betulifolia), service berry (Amelanchier alnifolia) in conjunction with rocky areas, and elk sedge (Carex geyeri). Occasional talus slides and small rock outcrops create a mosaic of habitat types.

The designated old growth areas (approx. 875 ac.) that lie fully in the corridor, and those that overlap, are providing excellent habitat for old growth dependent species such as the pileated woodpecker (Dryocopus pileatus) and the pine marten (Martes americana). There are other areas that provide old growth habitat within the corridor, these are not identified as designated old growth areas under the Malheur National Forest Land and Resource Management Plan. Although these areas extend beyond the boundary, they are adding to the overall effectiveness of the area. The old growth areas act as a refugium for the old growth dependent species as well as transitory species.

The riparian zone is a mixture of alder (Alnus spp.), willow (Salex spp.), red osier dogwood (Cornus stolonifera), currents (Ribes spp.), and graminoids. In areas the vegetation is in abundance, having a hedge like appearance. The riparian zone is an essential habitat connection between the river itself and the uplands. This area is also providing a unique habitat niche for many small mammals such as voles, shrews, and mice.

III. SPECIES DISCUSSION:

A. Management Indicator Species

The Malheur National Forest Land Management Plan has identified 13 management indicator species, of which 12 can be found within the river corridor. These species are used to monitor the effects of planned management activities on viable populations of wildlife, including those that are socially or economically important.

Rocky mountain elk (Cervus elaphus nelsoni), require an appropriate mixture of thermal cover, foraging areas, and areas of reduced harassment from motorized vehicles. All three requirements (thermal cover, foraging areas, and reduced harassment areas) can be found in abundance throughout the corridor. The extensive corridor provides an excellent migration and movement corridor for elk populations. This is especially important since adjacent managed areas provide less effective habitat for elk as a result of harvest activities, and increased road densities.

Pine marten (Martes americana), are generally associated with mature coniferous forest communities. These communities usually are dense stands with an abundance of downed wood material. The downed wood material provides habitat for the main prey items and escape cover for the pine marten. Pine marten tend to include riparian areas within their home ranges, using these areas to forage and travel, and the presence of talus or rocky areas provides cover and denning areas.

The corridor contains large acreages of mature forested habitat providing excellent pine marten habitat. The overall length of the river corridor also provides opportunities for movement of this species over a larger area and provides suitable habitat further to the southern portion of the corridor than the adjacent upland areas due to the presence of mature mixed conifer plant associations in section B, as well as plentiful rocky and talus areas. The continuous riparian zone also encourages pine marten use.

Pileated woodpeckers (Dryocopus pileatus) are also indicative of mature and old growth timbered habitats. Preferred habitat are stands of mature coniferous forests with 2 or more canopy layers. Nests are typically in large dead ponderosa pine or western larch trees. Large standing dead trees and downed woody material are used to forage for insects such as carpenter ants, mountain pine beetles and wood-boring beetle larvae.

Due to the extreme length (approximately 22 miles) of the river corridor and the abundance of mature timbered areas used for foraging and nesting, creates excellent habitat for pileated woodpecker. The connectivity between horizontal and vertical habitats occurs throughout the corridor, and can become a limiting factor outside the corridor due to past management activities.

The northern three-toed woodpecker (Picoides tridactylus) is an indicator species for old growth lodgepole pine (Pinus contorta) habitat. The diet is made up of wood-boring insects. This species utilizes primarily the west side of the river corridor, and is actively nesting on the west side of the river in section "B" (see habitat type description). In section "A" excellent habitat for this species can be found in the Big Cow Burn area.

White-headed woodpeckers (Picoides albolarvatus) are a management indicator species of old growth ponderosa pine communities. This species forages on the deeply fissured bark of mature ponderosa pine for insects, and in winter, almost exclusively on the pine seeds of ponderosa pine (Jackman and Scott, 1975). The nests of this species are in standing dead ponderosa pine trees (Bull, E., 1981). Habitat can be found throughout the west side of the river corridor in section "B" (refer to habitat type description), and in the old growth areas of both sections.

Habitat for this species within the corridor exceeds the adjacent areas, and in conjunction with the overall size of the corridor creates a refugium for the white-headed woodpecker.

The Lewis' woodpecker (Melanerpes lewis) is found in either open ponderosa pine forests with brushy undergrowth or lower elevation riparian woodlands. This species is frequently sighted throughout the river corridor, using the riparian zone as a connectivity corridor from north to south.

Yellow-bellied sapsuckers (Sphyrapicus varius) are closely associated with aspen or lowland forests (Bull, E., 1981). Foraging and nesting activities are

restricted to riparian areas, and the meadow areas in section "A". This species can be sighted throughout the river corridor.

Red-breasted sapsuckers (Sphyrapicus ruber) forage and nest among willows, alders and aspen (Populus tremuloides) (Jackman and Scott, 1975), and are associated with riparian habitats. This species is not frequent in the river corridor, but potential habitat can be found in the riparian zone (refer to habitat type description).

Williamson's sapsuckers (Sphyrapicus thyroideus) prefer grand fir (Abies grandis) forest communities with 2-3 canopy layers and less than 75 percent canopy closure. Nest trees are large diameter live or recently dead ponderosa pine, western larch (Larix occidentalis) and occasionally Douglas-fir or grand fir (Bull, E., 1981). Potential habitat can be found on the west side of the river in both sections of the river corridor.

Downy woodpeckers (Picoides pubescens) are found in coniferous forests with high insect populations. Aspen and willows are used for nesting areas; these tree species can be found in the riparian zones and meadows, predominantly in section "A". High insect levels provide a great deal of prey for this species. All aspects of the habitat requirements can be found within the corridor, and with the present epidemic insect populations this species may flourish in numbers.

Hairy woodpeckers (Picoides villosus) and northern flickers (Colaptes auratus) prefer open habitat with tree trunks, stumps, exposed roots, snags and downed logs to forage on (Bull, E., 1981). Both of these species can be found throughout the river corridor.

Black-backed woodpeckers (Picoides arcticus) are found in all forest types but prefer ponderosa pine. The larvae of woodboring beetles make up 3/4 of its food source (Bull, E., 1981). Habitat for the black-backed woodpecker can be found on the west side of the river in section "B".

B. Endangered and/or Threatened Species:

Endangered/Threatened refers to the species that are listed under the 1973 Endangered Species Act.

The Northern Bald Eagle (Haliaeetus leucocephalus), is listed as threatened by the U.S. Fish and Wildlife Service. The Northern Bald Eagle, require rivers or large bodies of water for both summer and winter habitat. During winter months the river or large bodies of water need to be ice free.

Bald eagles tend to nest in tall trees, although they will occasionally nest on cliffs and rock pinnacles. These nesting areas tend to have easy flight access to and view of water. Roost sites are an important component of winter habitat. Eagles roost on mature large trees generally isolated from human activity and with open horizontal branches suitable for perching with easy access.

Bald eagles primarily feed on fish, but will also feed on waterfowl, carrion, and small mammals (Grubb,T.G., Nagiller,S.J., et.al. 1989). There is potential summer and nesting habitat for the bald eagle throughout the river corridor, but there are no confirmed sightings.

The river corridor extending from the upper forested portions of section "A", to more open portions of section "B", creates an extensive diversity of usable

habitats. The acreages of this river corridor, exceeds all other corridors in this geographic area containing the needed habitat requirements. The interaction between the river and the uplands, allows the bald eagle to utilize the corridor to it's fullest potential.

The American peregrine falcon (Falco peregrins anatum), is listed as endangered by the U.S. Fish and Wildlife Service. The American peregrine falcon requires habitat consisting of nesting, perching, roosting and foraging areas. American peregrine falcons nest almost exclusively on cliffs, usually near water. The most preferred nesting sites are sheer cliffs approximately 150 feet or more in height. The cliff usually has a small cave or overhang ledge large enough to contain three to four full-grown nestlings (The Pacific Coast American Peregrine Falcon Recovery Team, 1982).

Foraging areas include wooded areas, marshes, open grasslands and bodies of water. The wooded areas near water attract a wide variety of avifauna, while the bodies of water provide openings reducing prey escapement. The main prey item for the peregrine falcon consists of bird species such as waterfowl. There is potential habitat for the peregrine falcon throughout most of the river corridor, mainly occurring on the east side of the river in section "B". Although there are no confirmed sightings to date in the river corridor, the close proximity of large cliffs, snags, wooded areas, and the vast size of the corridor make the corridor an excellent future location for peregrine falcon.

C. Sensitive Species:
Sensitive refers to species on the Regional Forester's (Region 6) Sensitive Species List for Oregon and/or Washington .

The California bighorn (Ovis canidensis californiana), require mountains, canyons, or a combination of both habitats. Areas with low shrub and grass height provide excellent to good bighorn habitat.

In general, grasses and forbs are the major staple forage during all seasons, particularly spring and summer. Browse consumption increases during the fall and may become an important part of winter diet in many habitats. There is potential habitat for the bighorn within the river corridor, mainly occurring on the east side of the river in section "B".

The ability of the bighorn to utilize canyons and the presence of the required vegetative habitat over most of the east side of section "B", present many acres of usable habitat. The low road density, and lack of human disturbance also create excellent habitat for bighorn.

California wolverine (Gulo gulo luteus), can be found in mature or intermediate timbered areas around natural openings including cliffs, slides, timber blowdown, basins and meadows. In summer months wolverines move to higher, cooler elevations near the alpine zone. Wolverines primarily feed on rodents and ungulate spp. carrion. They also eat berries, insects, fish and birds. The river corridor provides foraging opportunities, solitude and the interactive habitat types needed by wolverine for approximately 22 miles.

Although there are no confirmed sightings to date, there is potential habitat for the wolverine throughout the river corridor, mainly occurring on the west side of the river in section "B", and the uplands of section "A", and the riparian zone of both sections.

Preferred habitat for the Preble's shrew (Sorex preblei) is grass/sedge meadows, quaking aspen types, and hardwood dominated riparian zones (Larrison and Johnson, 1981). The habitat requirements for Preble's shrew can be found in the riparian zone and meadows of both sections. Habitat for this species can be negatively altered through overgrazing by domestic livestock.

The Pacific western big-eared bat (Plecotus townsendii townsendii), can be found in a wide variety of habitats, from arid juniper/pine forests to high elevation mixed conifer forests. In winter they commonly roost in abandoned mines or caves starting around October until mid-spring. There is potential habitat for the big-eared bat throughout the river corridor. In section "B" the abundance of caves and crevices which are close to forested areas and water, compose an area rich in potential habitat for this species.

Greater sandhill crane (Grus canadensis tabida), inhabit wet meadows and marshes associated with riparian zones. Nesting areas tend to occur in marshes, stinger meadows, beaver (Caster canadensis) ponds, and riparian zones. Nests are usually constructed from residual vegetation from the previous growing season (Littlefield and Ryder 1968). Potential habitat for the sandhill crane can be found in the riparian zone and meadow areas of both sections. The meadow areas and riparian habitat in section "A" are providing exceptional habitat for this species. Habitat for this species can be negatively altered through overgrazing by domestic livestock.

Western sage grouse (Centrocerus utophasianus), use sagebrush steppe or juniper steppe rangelands exclusively. Sage grouse depend on sagebrush for food and cover. When broods are present they are usually associated with riparian areas or meadow areas. Habitat for the sage grouse can mainly be found on the east side of the river or occasionally on the upper elevations of the west side of the river in section "B", where open habitat exists.
The sage grouse during the spring depend on the connectivity of the habitat types (riparian zones, meadows and uplands), and will tend to inhabit areas in close proximity of both. This habitat connectivity is found in the river corridor.

C. Featured Species:
The California bighorn, Western sage grouse, and the upland sandpiper are considered Featured Species on the Malheur National Forest. For further discussion refer to the Sensitive Species discussion.

The pronghorn antelope (Artilocapra americana), prefer habitat with large, wide open, low rolling rangelands with no major physical barriers. These habitat types are associated with sagebrush/grassland steppe plant communities. The pronghorn is not an inhabitant of the river corridor, but will occasionally use the corridor on a migratory basis and is present adjacent to the corridor in suitable habitat.

The osprey's (Pandion haliaetus), preferred habitat is almost always associated with aquatic environments, such as rivers, lakes, and reservoirs They prey upon fish almost exclusively.
Most osprey nest in the top of standing dead trees or live trees with broken tops. The typical nest is 4-6.5 feet in diameter and about 1-2 feet deep. There are historical nest locations within, and directly adjacent to, the river corridor. The potential for increased osprey use within the corridor

is tremendous due to the extent of effective habitat present. With large standing dead trees in abundance throughout the corridor, and the presence of approximately 22 miles of free flowing water intermingled with deep canyons and meadows the corridor presents some of the best osprey habitat in the immediate geographic area.

Other Species:

The black bear's (Ursus americanus) preferred habitat is remote forests with dense understories, or a mixture of seral stages. Black bear will utilize caves, crevices and overhanging areas to rest or overwinter. Black bears can be found throughout the river corridor, in all habitat types. The river corridor presents an opportunity for the black bear to move from the forested areas to the more open areas during seasonal migrations, without having to leave the corridor to forage or overwinter. Section "B" presents the more suitable habitat for year-long use.

The mountain lion (Felis concolor) and bobcat's (Felis rufus), preferred habitats include mixed conifer areas, pine-bunch grass areas with low density understories, shrublands, rocky cliffs, and ledges,(caves and cavities are used for resting and denning purposes). Mountain lions are very closely associated with deer winter and summer habitats due to their dependence upon deer for food. Solitude and freedom from human interaction generally characterize the more productive mountain lion and bobcat habitat. Potential habitat for mountain lion and bobcat can be found throughout the river corridor, with the east side of the river of section "B" providing the best preferred habitat.

The length of the river creates a connectivity corridor from the Blue mountains to the Great Basin environment, creating excellent habitat for seasonal migration and viable territory size.

The prairie falcon's (Falco mexicanus) preferred habitat is open mountain regions, short grass prairies, and occasionally wooded areas. Roosting and nesting areas tend to be cliffs and ledges with an average height of 30-40 feet, always facing open habitats. The main prey items include birds, small mammals, insects and lizards. Prairie falcons can be sighted on the east side of the river in section "B" on an occasional basis utilizing the steep canyons, and cliffs.

CONCLUSION:

The wildlife species in the North Fork Malheur River corridor are also commonly found outside the corridor, but the habitat types present, and the overall length of the habitats, far exceed other river corridors in our geographic area. The distinctive and dynamic habitat types are interactive, providing contigous habitat conditions both horizontally and vertically making the river an excellent connectivity corridor. All aspects of the river corridor interact together, resulting in an area rich in species diversity. The corridor allows for immigration and emmigration, increasing the ability for genetic dispersal throughout. This increases the potential for the entire river corridor to function as a complete ecosystem. The interface between the distinctive habitat types acts as a travel/migrational corridor for the winter migration for elk & deer from their historic summer range to winter ranges. The same corridor is used for hunting by the raptor species present and provides opportunities for migrating raptors.

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Appendix A. Birds species documented or expected in the North Fork Malheur Wild and Scenic River Corridor

CANADA GOOSE
MALLARD
GADWALL
WOOD DUCK
BARROW'S GOLDENEYE
COMMON MERGANSER
TURKEY VULTURE
NORTHERN GOSHAWK
COOPER'S HAWK
SHARP-SHINNED HAWK
MARSH HAWK
ROUGH-LEGGED HAWK
FERRUGINOUS HAWK
RED-TAILED HAWK
SWAINSON'S HAWK
GOLDEN EAGLE
BALD EAGLE
OSPREY
PRAIRIE FALCON
KESTREL
BLUE GROUSE
WESTERN SAGE GROUSE
RUFFED GROUSE
GREAT BLUE HERON
BLACK-CROWNED NIGHT HERON
SANDHILL CRANE
VIRGINIA RAIL
SORA
KILLDEER
SPOTTED SANDPIPER
COMMON SNIPE
ROCK DOVE
MOURNING DOVE
SCREECH OWL
GREAT-HORNED OWL
LONG-EARED OWL
SAW-WHET OWL
FLAMMULATED OWL
POOR-WILL
COMMON NIGHTHAWK
CALLIOPE HUMMINGBIRD
BLACK-CHINNED HUMMINGBIRD
RUFOUS HUMMINGBIRD
BELTED KINGFISHER
COMMON FLICKER
PILEATED WOODPECKER
LEWIS'WOODPECKER
WHITE-HEADED WOODPECKER
WILLIAMSON'S SAPSUCKER
RED-NAPED SAPSUCKER
HAIRY WOODPECKER
DOWNY WOODPECKER
NORTHERN THREE-TOED WOODPECKER
WESTERN KINGBIRD
SAY'S PHOEBE
TRAIL'S FLYCATCHER
HAMMOND'S FLYCATCHER
WESTERN FLYCATCHER
WESTERN WOOD PEEWEE
OLIVE-SIDED FLYCATCHER
HORNED LARK
CLIFF SWALLOW
VIOLET-GREEN SWALLOW
TREE SWALLOW
BANK SWALLOW
ROUGH-WINGED SWALLOW
STELLER'S JAY
GRAY JAY
BLACK-BILLED MAGPIE
CLARK'S NUTCRACKER
COMMON RAVEN
COMMON CROW
BLACK-CAPPED CHICKADEE
MOUNTAIN CHICKADEE
COMMON BUSHTIT

Appendix A. Continued.

WHITE-BREASTED NUTHATCH
RED-BREASTED NUTHATCH
PYGMY NUTHATCH
BROWN CREEPER
DIPPER
HOUSE WREN
ROCK WREN
CANYON WREN
LONG-BILLED MARSH WREN
SAGE THRASHER
AMERICAN ROBIN
VARIED THRUSH
TOWNSEND'S SOLITAIRE
HERMIT THRUSH
WESTERN BLUEBIRD
MOUNTAIN BLUEBIRD
GOLDEN-CROWNED KINGLET
RUBY-CROWNED KINGLET
WATER PIPIT
BOHEMIAN WAXWING
CEDAR WAXWING
LOGGERHEAD SHRIKE
SOLITARY VIREO
WARBLING VIREO
ORANGE-CROWNED WARBLER
NASHVILLE WARBLER
YELLOW WARBLER
YELLOW-RUMPED WARBLER
TOWNSEND'S WARBLER
BLACK-THROATED GRAY WARBLER
YELLOWTHROAT
YELLOW-BREASTED CHAT
MACGILLIVRAY'S WARBLER
WILSON'S WARBLER
AMERICAN REDSTART
WESTERN MEADOWLARK
RED-WINGED BLACKBIRD
BREWER'S BLACKBIRD
NORTHERN ORIOLE
BROWN-HEADED COWBIRD
WESTERN TANAGER
BLACK-HEADED GROSBEAK
EVENING GROSBEAK
LAZULI BUNTING
PURPLE FINCH
CASSIN'S FINCH
HOUSE FINCH
PINE SISKIN
AMERICAN GOLDFINCH
RED CROSSBILL
GREEN-TAILED TOWHEE
RUFOUS-SIDED TOWHEE
SAVANNAH SPARROW
VESPER SPARROW
SAGE SPARROW
DARK-EYED JUNCO
CHIPPING SPARROW
WHITE-CROWNED SPARROW
FOX SPARROW
LINCOLN'S SPARROW
SONG SPARROW

Appendix B: Mammal Species documented or expected in the North Fork Malheur River Wild & Scenic Corridor.

Scientific Name	Common Name	Reproduces	Potential for Occurrence
Family Soricidae			
Sorex preblei	Preble's Shrew	Y	L
Sorex vagrans	Vagrant Shrew	Y	H
Sorex obscurus	Dusky Shrew	Y	H
Sorex palustris	Northern Water Shrew	Y	M
Sorex merriami	Merriam's Shrew	Y	M
Family Vespertilionidae			
Myotis lucifugus	Little Brown Myotis	Y	H
Myotis yumanensis	Yuma Myotis	Y	L
Myotis evotis	Long-eared Myotis	Y	L
Myotis thysanodes	Fringed Myotis	Y	L
Myotis volans	Long-legged Myotis	Y	M
Myotis californicus	California Myotis	Y	H
Myotis leibii	Small-footed Myotis	Y	L
Lasionycteris noctivagans	Silver-haired Bat	Y	M
Pipistrellus hesperus	Western Pipistrelle	Y	H
Eptesicus fuscus	Big Brown Bat	Y	H
Lasiurus cinereus	Hoary Bat	Y	M
Euderma maculatum	Spotted Bat	Y	M
Plecotus townsendi	Western Big-eared Bat	Y	L
Antrozous pallidus	Pallid Bat	Y	M
Family Sciuridae			
Eutamias minimus	Least Chipmunk	Y	H
Eutamias amoenus	Yellowpine Chipmunk	Y	H
Marmota flaviventris	Yellow-bellied Marmot	Y	L
Spermophilus townsendi	Townsend Ground Squirrel	Y	H
Spermophilus beldingi	Belding Ground Squirrel	Y	H
Spermophilus columbianus	Columbian Ground Squirrel	Y	H
Spermophilus lateralis	Golden-mantled Ground Squirrel	Y	H
Tamiasciurus douglasi	Chickaree	Y	L
Glaucomys sabrinus	Northern Flying Squirrel	Y	H
Family Geomyidae			
Thomomys talpoides	Northern Pocket Gopher	Y	H
Thomomys townsendi	Townsend Pocket Gopher	Y	L

Appendix B: Mammal Species documented or expected in the Malheur River Wild & Scenic Corridor. (cont'd)

Scientific Name	Common Name	Reproduces	Potential for Occurrence
Family Heteromyidae			
Perognathus parvus	Great Basin Pocket Mouse	Y	H
Dipodomys ordi	Ord Kangaroo Rat	Y	L
Family Castoridae			
Castor canadensis	Beaver	Y	M
Family Cricetidae			
Reithrodontomys megalotis	Western Harvest Mouse	Y	M
Peromyscus crinitis	Canyon Mouse	Y	L
Peromyscus maniculatus	Deer Mouse	Y	H
Onychomys leucogaster	Northern Grasshopper Mouse	Y	L
Neotoma cinerea	Bushy-tailed Woodrat	Y	H
Clethrionomys gapperi	Gapper Red-backed Vole	Y	L
Phenacomys intermedius	Heather Vole	Y	L
Microtus montanus	Mountain Vole	Y	M
Microtus longicaudus	Long-tailed Vole	Y	H
Microtus richardsoni	Water Vole	Y	L
Lagurus curtatus	Sagebrush Vole	Y	M
Family Zapodidae			
Zapus princeps	Western Jumping Mouse	Y	M
Family Erethizontidae			
Erethizon dorsatum	Porcupine	Y	H
Family Ochotonidae			
Ochotona princeps	Pika	Y	M
Family Leporidae			
Sylvilagus idahoensis	Pygmy rabbit	Y	L
Sylvilagus nuttallii	Nuttall's cottontail	Y	H
Lepus americanus	Snowshoe hare	Y	M
Lepus townsendi	Whitetail jackrabbit	Y	L
Lepus californicus	Blacktail jackrabbit	Y	H

Appendix B: Mammal Species documented or expected in the North Fork Malheur River Wild & Scenic Corridor. (cont'd)

Scientific Name	Common Name	Reproduces	Potential for Occurrence
Family Canidae			
Canis latrans	Coyote	Y	H
Vulpes vulpes	Red fox	Y	L
Family Ursidae			
Ursus americanus	Black bear	Y	H
Family Procyonidae			
Procyon lotor	Racoon	Y	L
Family Mustelidae			
Martes americana	Marten	Y	L
Mustela erminea	Short-tailed weasel	Y	H
Mustela frenata	Long-tailed weasel	Y	H
Mustela vison	Mink	Y	H
Gulo gulo	Wolverine	?	L
Taxidea taxus	Badger	Y	H
Mephitis mephitis	Striped skunk	Y	L
Lutra canadensis	River otter	Y	H
Family Felidae			
Felis concolor	Mountain lion	Y	H
Lynx rufus	Bobcat	Y	H
Family Cervidae			
Cervus elaphus	Rocky Mountain elk	Y	H
Odocoileus hemionus	Mule deer	Y	H
Odocoileus virginianus	White-tailed deer	N	L
Family Antilocapridae			
Antilocapra americana	Pronghorn	Y	H

Appendix C: Reptile & Amphibian Species documented or expected in the North Fork Malheur River Wild & Scenic Corridor.

Scientific Name	Common Name	Reproduces	Potential for Occurrence
Family Ambystomatidae			
Ambystoma macrodactylum	Long-toed Salamander	Y	H
Family Pelobatidae			
Scaphiopus intermontanus	Great Basin Spadefoot Toad	Y	H
Family Bufonidae			
Bufo boreus	Western Toad	Y	H
Family Hylidae			
Hyla regilla	Pacific Treefrog	Y	H
Family Ranidae			
Rana pretiosa	Western Spotted Frog	Y	H
Rana pipiens	Leopard Frog	Y	M
Family Iguanidae			
Sceloporus occidentalis	Western Fence Lizard	Y	M
Sceloporus graciosus	Sagebrush Lizard	Y	M
Uta stansburiana	Side-blotched Lizard	Y	L
Phrynosoma douglassi	Short-horned Lizard	Y	M
Family Scincidae			
Eumeces skiltonianus	Western Skink	Y	M
Family Teiidae			
Cnemidophorus tigris	Western Whiptail	?	L
Family Boidae			
Charina bottae	Rubber Boa	Y	L
Family Colubridae			
Coluber constrictor	Yellow-bellied Racer	Y	M
Pituophis melanoleucus	Gopher Snake	Y	H
Thamnophis sirtalis	Common Gartersnake	Y	H
Thamnophis elegans	Western Terrestrial Gartersnake	Y	M
Family Viperidae			
Hypsiglena torquata	Night Snake	Y	L
Crotalus viridis	Western Rattlesnake	Y	H

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Technical Report on Cultural Resources
for the North Fork Wild and Scenic River

by
Suzanne Crowley Thomas
Forest Archaeologist

revised, Jan. 1992

Prehistoric Resources

There have been 8 prehistoric sites previously recorded in the river corridor. Most appear to represent specialized task activity areas such as the later stages of lithic reduction, tool rejuvenation, and faunal procurement and processing sites. These locations contain obsidian, basalt, CCS, and ignimbrite debitage, as well as a limited number of projectile points, a scraper, a chopping tool, cores, and miscellaneous biface fragments. Two locations represent an uncommon site type, a basalt cobble source, which exhibit a high percentage of decortication flakes. The river corridor undoubtedly served as a travel route as well and some of these sites may be associated with this travel, especially given their seemingly ephemeral nature.

However, limited ground visibility undoubtedly obscures some cultural material and may reduce the perceived size of the sites. Only one has received subsurface testing and the lone 30 cm deep test pit revealed shallow, gravelly soils and no cultural material. Most site records suggest that depth is likely or recommend testing. The known diagnostically chronological materials are Cascade, Eastgate, and Desert Side Notched series projectile points, which suggest a Middle to Late Archaic period of use. They also indicate a Great Basin cultural orientation, at least during later prehistory. Seven of the sites are judged eligible for inclusion in the National Register of Historic Places due to their potential to yield information important in prehistory. They are not considered rare in the region of comparison. The sites have received some disturbance from road construction or use, recreational use, and erosion, most of which is ongoing, but appear to maintain their integrity overall.

During a recently completed cultural resource survey of the river corridor, nine additional prehistoric sites were recorded. Five are lithic scatter sites of unknown function. One of these also has a historic component consisting of a log trough. A basalt material source site was identified, as well as two cambium-peeled tree sites. A single petroglyph, a potentially unique site on the Forest, was also recorded. All but the peeled trees are likely to be judged eligible for the National Register. Further information will be available when the survey report is completed.

Historic Resources

Nine historic sites have previously been recorded in the river corridor. One is a historic camp of unknown association that contains multiple classes of artifacts. Two sites, which may represent sheep camps, consist of a few aspen trees carved with names and dates. Two sites are trail segments with blazed trees along them that lead up out of the river canyon along tributary creeks. Historic documentation indicates that the Sheep Creek trail pre-dates 1928 and had 2 sheep camps along its length (although no physical remains have been

found). The other trail was constructed for unknown purposes and has tree blazes that have been increment bored as 66 to 102 years old. Another site is a portion of a 76-mile Forest Service telephone line network used for fire control. North Fork Cow Camp consists of a corral and pole enclosure, cabin, storage shed, and outhouse. All these sites date from the early 20th century. The telehone line network is judged eligible for the National Register of Historic Places, Sheep Cr. trail and North Fork Cow Camp are of undetermined eligibility, and the others are judged ineligible.

The Douglas-Howell Toll Road was built in the 1860s and later incorporated into The Dalles Military Road, which linked the supply points of The Dalles and Fort Boise with the settlements of eastern Oregon. This route, which was crucial to the settlement of eastern Oregon, crosses the North Fork at Crane Crossing. The Creighton Road of the 1860s-70s branched off the military road at this point. It served as a haul route for hay and other freight between the Grande Ronde Valley and Fort Harney. This route also played a pivotal role in the Euroamerican settlement of southeastern Oregon. There are some stretches of these roads in pristine condition outside the river corridor. They are judged eligible for inclusion in the National Register of Historic Places because they are associated with events that have made a significant contribution to the broad patterns of our history.

The river corridor was contained within the Malheur Indian Reservation, which was in existence between 1872 and 1882. It is not known if there are sites in the river corridor related to this period.

During a recently completed cultural resource survey of the river corridor, three additional historic sites were identified. One is a historic camp of unknown duration and purpose that contains rock alignments. The second is a log trough and the last is a wooden cattle guard. No dates have been assigned to these sites at present. None are likely to be judged eligible for the National Register.

Traditional Use/Cultural Values

The North Fork area is known to have been used by the Northern Paiute, Umatilla, Cayuse, and Warm Springs peoples in historic times. Indian folks are known to have fished the river in recent times but other uses are unknown at present.

United States Department of Agriculture | Forest Service | Malheur NF

Reply to: 2350 River Management | Date: July 30, 1991

Subject: Watershed Resource Assessment for the North Fork Malheur River

To: North Fork Malheur Analysis File (EA)

INTRODUCTION

Nomination of the North Fork Malheur River for inclusion in the federal Wild and Scenic River System, and successful passage of the study phase has resulted in the need to develop a management plan for the river. As a preliminary phase, an assessment of the existing resources is to be completed and documented. As the interdisciplinary process continues on into alternative development, additional documentation of environmental consequences, management prescriptions, and monitoring needs will be identified. This document is intended to fulfill the requirement for a resource assessment as a stand alone document for the water resources of the North Fork.

CLIMATE AND BASIN GEOMORPHOLOGY

The entire North Fork drainage rests on bedrock consisting predominantly of andesites and basalts of the Strawberry Volcanic Series, which are among the most resistant on the forest. Consequently, landforms within the basin are uniformly stable and are not prone to mass failures which generate large amounts of material into the stream system. Annual precipitation decreases from approximately 40" of rain and snow per year in the upper end of the drainage to as little as 15" per year where the river exits the forest. The majority of the precipitation occurs as snowfall and accumulates from November through April in the headwater regions of the drainage. Elevations within the drainage range from a high point of 8052 feet above sea level at the summit of Lookout Mountain down to 3960 feet above sea level where the river exits the forest.

Tributary drainages in the upper portion of the North Fork are the primary source of water for the scenic segment of river. These drainages include those tributaries north of and including Elk Creek. In particular, east flowing streams such as Elk Creek, Swamp Creek, and others that originate in high glacial basins to the west of the North Fork generate abundant flows of cool water. Broad gentle basins with deep glacial soils in the upper reaches of these streams combine with generous winter precipitation to facilitate snow accumulation and retention. Streams on the east side of the drainage such as Spring Creek also provide good flows in the spring and early summer, but lower amounts of snow accumulation and shallower soils prevent these streams from contributing as significantly to the late summer low flows.

Below Elk Creek, the basin of the North Fork changes character dramatically. Here, the basin is characterized by a few large dendritic tributaries that collect water outside the river canyon and only occasionally break through to the river. This is the case for Crane Creek on the west side of the drainage and Bear Creek which occupies the east side of the drainage and joins the river

below the forest boundary. Other than these two streams, most tribitaries in the lower portions of the North Fork are confined to the river canyon and it's immediate vicinity and contribute very little flow other than in the spring of the year.

Soils are generally deeper in the northern part of the North Fork drainage, and shallower in the south. Low annual precipitation in the south also results in some areas that are not capable of supporting 50 percent ground cover. These areas are potential sources of sediment but comprise only 10 percent of the total basin. Rock armoring of slopes in many of these areas largely replace vegetation in the role of ground cover so that the over all risk of high sediment yields is not great.

Highly erosive soils with a high clay content are not common in the North Fork drainage, covering less than 5 percent of the total basin. As a result, water turbidities in the North Fork are generally low.

CHANNEL AND FLOODPLAIN MORPHOLOGY

Through most of it's length, the gradient of the North Fork ranges from 1 to 2 percent. Above 5400 feet however, the gradient gradually steepens and reaches a maximum gradient of over 7 percent in the topmost reaches of the scenic segment of the river. The river channel is relatively straight, with only occasional meandering and braiding. Channel bottoms are well armored by small boulder and cobble sized materials that are derived from the resistant bedrock. Channel widths increase from 3 to 5 feet in the upper forked reaches to 40 to 50 feet wide in the lower reaches, as flow increases.

Above 5600 feet, the river and it's two forks remain confined in a gentle vee shaped incision with occassional widened bottoms. On the eastern fork, a large complex of hillside springs that originates on the west facing slope at about 6100 feet elevation provides significant flows and has resulted in an extensive area of riparian vegetation that extends from the river, upslope to the source. Below 5600 feet a wider floodplain begins to develop, ranging from 4 to 8 times the channel width. These wide floodplains continue downstream to where Road 1675 crosses the river. Along the margins of the floodplains, sloping wet meadows occur where ever a tributary stream joins the river.

Above the crossing of Road 1675, the river and it's flood plain occupies the bottom of a large glacial valley. Soils in the valley are greater than 10 feet deep and are predominantly ashy loams. These soils are highly infiltrative and because of their great depth, are capable of storing large amounts of water. As a result, the sloping wetlands adjacent to the floodplain represent a significant groundwater storage that captures spring and early summer runoff and releases it to the river in late summer low flow periods.

These wetlands may also indicate the presence of hyporheic habitat beneath them, depending on the gravel content of the subsoil. Gravel content ranges from 35 to 60 percent, and where the highest concentrations occur, hyporheic habitat may be present.

Below the crossing of Road 1675, the basin narrows into a confining canyon and the floodplain narrows rapidly till it becomes little wider than the river itself. Occasional benches occur, but do not alter the confined nature of the river. Absence of the deep soils that occur in the upper basin result in a dramatic reduction in the amount of adjacent wetlands along the river. Some

small localized wet areas occur at the confluences of the biggest tributary streams.

An interesting feature that occurs on the lower portion of the scenic river is a large relic landslide mass that collapsed from the east canyon wall and formed a rounded knob. This feature is located at the bend in the river just below the confluence of Skagway Creek.

WATER QUALITY AND QUANTITY

As previously mentioned, favorable landforms and soil types have resulted in relatively low levels of sediment transport and turbidity in the North Fork.

Little actual flow data is readily available for this portion of the North Fork. However, a USGS guaging station is located on the river just above Beulah Reservoir. While this station is well below the scenic river segment and several large tributaries add water to the river, the following data indicate the year round flow consistancy in the North Fork. Data for the last four years is also included to roughly display the impacts of the recent drought on the river. Upstream water diversions somewhat reduce the reliability of the information.

Largest Flood: 3970 CFS 12/23/64

Lowest Flow: 8.5 CFS 12/13/67

The following data are mean daily flow values expressed in CFS.

	Avg. 1936-88	Avg. 1987-90 (Drought)
October	53.1	46.7
November	58.2	55.3
December	69.0	48.3
January	77.3	48.8
February	123.2	51.7
March	219.9	166.6
April	380.4	204.8
May	322.5	156.4
June	170.5	70.2
July	67.1	40.0
August	46.1	37.5
September	47.3	38.7
Annual	136	81

It is readily apparent that the recent drought has resulted in a dramatic reduction in stream flow in the North Fork.

Some additional instantaneous flow data was collected on the North Fork and some of it's tributaries in 1990.

Stream	Date	Flow
Crane Creek	8/28/90	7.6 CFS
Sheep Creek	8/28/90	1.1 CFS
Elk Creek	8/28/90	3.8 CFS
North Fork (above Cow Camp)	8/28/90	18.5 CFS
North Fork (above Crane Creek)	8/28/90	22.1 CFS

Water temperatures in the North Fork are dominated by cold water tributaries flowing into an mostly unshaded, north south flowing stream with a dark rock substrate. Consequently, stream temperatures in much of the river are significantly higher than in the tributaries. Summer temperatures in the tributary streams range from approximately 45 60 degrees depending on the amount of shade and how high the headwaters are. Temperatures in the river move into the upper 60's in hot weather.

FIRE HISTORY

In 1939, a large portion of the glacial headwaters of the North Fork was burned by the Big Cow Fire. Since then, the area has reforested itself with a dense stand of 20 to 40 foot tall lodgepole pine. Large areas were contour terraced after the fire to provide planting sites. These terraces provided the extra benefit of sediment entrapment on the slopes. Hydrologically, the Big Cow Fire area has recovered completely.

In 1989, the Glacier Fire burned a little over 4000 acres of the North Fork drainage, mostly in the Swamp Creek and Deadhorse Creek tributaries. In 1990, the Sheep Mountain Fire burned an additional 8500 acres of the drainage, mostly in the Sheep Creek, Elk Creek, and Little Crane Creek tributaries. Shortly after each of these fires, large runoff events occured in the affected streams. As a result, large amounts of ash were transported into the streams, causing temporary increases in turbidity and Ph. These effects are expected to be short lived. While additional events are expected to occur, recurrent ash flushes are not anticipated as post fire erosion and sediment control measures become effective. Longer lasting effects of these fires include altered timing and amount of available flows due to altered snowpack accumulation and melting rates, and increased stream temperatures as a result of the loss of shading vegetation.

Reduction in shade along these streams were assessed and temperature increases were estimated fire fire recovery analysis. The results are displayed in the following table.

Little Crane Creek	1.3 Degrees F.
Crane Creek	.5 Degrees F.
Elk Creek	1.8 Degrees F.
Sheep Creek	2.3 Degrees F.
Swamp Creek	2.3 Degrees F.
Deadhorse Creek	3.0 Degrees F.
North Fork Malheur River	.9 Degrees F.

Resprouting and growth of riparian vegetation is expected to replace the lost shade and reduce stream temperatures to pre-fire levels in approximately 10 years.

MANAGEMENT ACTIVITIES

With the exception of the Crane Creek and Spring Creek tributaries, timber harvest and road building activities within the North Fork drainage have occurred at low to moderate levels. Within Crane Creek the need to harvest fire damaged stands after already extensive timber harvest and roading had occurred, has resulted in a particularly high level of disturbance. In many instances, where timber management has occurred, a determined effort has been made to protect the water resources. An example is Flat Creek, where silvicultural treatment required large clearcut harvest areas along the south side of the

creek. To maintain stream shading and filter sediment produced in the clearcuts, wide buffers of riparian vegetation and standing timber were retained.

Grazing in the North Fork results in very little actual disturbance of the streams, except along portions of the river itself and tributary reaches that are located on the relatively flat, open lands in the glacial bottom lands above the 1675 road. In the Crane Creek sub drainage, livestock use of some of the riparian areas is extensive. In much of the rest of the North Fork drainage, livestock use is hampered by steep terrain and dense riparian vegetation

There are three water diversions along the North Fork drainage. The first is located on Swamp Creek approximately 1/4 mile above Road 13. The other two are along the North Fork itself between the Cow Camp and road 1675.

David G. Kretzing
Hyrdologist

North Fork Malheur River
Scenic River Resource Assessment
Botany/Ecology

Greg D. Lind, Botanist
Prairie City Ranger District
Sept 4, 1991

I. GENERAL ECOLOGY/BOTANY

The North Fork Malheur River corridor flows in a north-south direction and is influenced by the continental climate of the great basin and the interior west. Winters are cold with moderate snowfall, while summers are hot and dry. Most rainfall occurs in late spring and additional rainfall may not happen again until late fall. The bottom segment (Segment B, from NF trailhead downstream to the forest boundary) is a narrow v-shaped canyon with steep upland slopes and the aspect for each river bank determines the plant communities that develop. The dryer west aspect will produce plant communities that are adapted to hotter and dryer conditions. The east aspects will support plant communities that require moister conditions. The upper segment of the river (Segment A, from headwaters downstream to NF trailhead) has a wider floodplain with upland slopes that are less steep than the lower segment. The higher elevation of the upper segment and the wider and shallower side slopes buffers the difference between river aspects and produces similar plant communities on each side of the river. The elevation gradient is 4200 to 4600 ft for the lower segment (Segment B) and from 4600 ft to 5600 ft for the upper segment (Segment A).

1. Segment A. (northern portion of the river)

The upper segment of the NF Malheur River corridor is higher in elevation, has a wider floodplain and supports plant associations that need moister, cooler conditions. The west aspects have a mixture of Douglas Fir/Pinegrass and Grand Fir/Pinegrass plant associations. Grand Fir is indicative of moister conditions than Douglas Fir and will be found at the lower toeslopes and mesic aspects of the side drainages. Many of the side drainages have seepage springs at the origin of the small streams that feed into the main river. These seepage areas are a mix of Alder shrubs and Graminoid species with a rich array of flowering forbs such as Monkeyflowers, Bog-Orchids and Willow-Herbs. The east aspect of the river corridor is primarily Grand Fir/Pinegrass plant associations. Many of these Grand Fir and Douglas Fir types have large mature Ponderosa Pine as the remnant fire seral tree species. There are some areas where site conditions have left small stands of mature Ponderosa Pine with little or no fir reproduction. These Pine dominated stands may give the visitor some feeling of how much of the river corridor might have looked before fire suppression became the dominate Forest Service management style.

The very upper portion of the river corridor is dominated by the results of the Big Cow Burn in the 1930s. This wildfire consumed thousands of acres and many sites were planted with Lodgepole Pine. These Lodgepole stands are now 30-50 years old and some have been thinned while others are dense "dog-hair"

stands. The climax plant association that will develop from these Lodgepole stands would likely be a Grand Fir/Grouse Huckleberry type.

There are four Old Growth Areas adjacent to the river corridor in Segment A. Two of the Old Growth Areas (#333 and #339) are mentioned due to the plant associations present and the significance of each. Old Growth Area # 333 is a proposed Research Natural Area as well as a designated Old Growth Area. The zone ecologist feels this area between Dugout Creek and Stink Creek is significant due to the good condition Grand Fir/Pinegrass plant association that is present. Dugout Creek Proposed Research Natural Area is adjacent to the scenic river boundary and is approximately 550 acres. Old Growth Area # 339 (Prairie Hill OG) is interesting due to the mature Ponderosa Pine stands that occur toward the bottom of the upland slopes. These Pine stands are remnants of a fire seral stage that exhibits the clean understory dominated by Pinegrass and represent the "park-like" stage of fire seral Pine stands.

Riparian Vegetation in Segment A.

Meadow ecotypes are more developed in the upper segment due to a wider floodplain and lower gradients. The riparian zone is dominated along the river banks by an Alder/Currant/Graminoid plant association. Large adjacent meadow complexes support Lodgepole Pine/Sedge plant community types on moister sites and Graminoid/Forb plant community types on moist to dry sites. These meadow ecosystems are very complex and support a high biological diversity of plant species compared to the upland timber types. Many of the Alder shrubs show signs of a disease that defoliated many of the Alder shrubs in previous years. Most Alder plants are not dead and show signs of sprouting from the bases of the older plants. Water diversions are present in the larger meadow systems, the result of livestock permittees attempts to increase forage production for livestock grazing. Utilization of the meadow ecosystems by domestic livestock has occurred for 50 years and this periodic seasonal use has modified the riparian vegetation by the alteration and reduction of the shrub plant associations.

2. Segment B (southern portion of the River)

The lower segment of the river (Segment B) is characterized by Big Sagebrush /Bluebunch Wheatgrass communities on the dryer west aspects. Rock talus slides are common and shrubs such as Chokecherry and Wax Current find a niche on this harsh environment. Shallow draws and moister micro-sites will produce pockets of Douglas Fir and many are large mature trees despite the harsh growing conditions. The east aspects are more mesic and the moister conditions allow timber communities to dominate. Douglas Fir/Birchleaf Spirea/Pinegrass communities are common and even colonize some of the rocky talus sites. Mature Ponderosa Pine trees are found within the Douglas Fir communities as fire seral species. Many of these Ponderosa Pine trees can be older than 150 years and greater than 20" in diameter. One established Old Growth Area is along this east aspect at the bottom of Segment B in the vicinity of Skagway Creek and Shale Rock Draw. This OG area (#330) is a Douglas Fir/Birchleaf Spirea /Pinegrass plant association and is about 320 acres. Some areas of Big Sagebrush / Bluebunch Wheatgrass are found on the east aspect in the dryer, rocky habitats. The open rock talus areas on this

east aspect support Service-berry, Wax Current and Chokecherry shrubs. Service-berry requires moister conditions and is not very common on the west aspect shrub communities.

The top part of segment B of the river corridor supports large stands of Douglas Fir/Pinegrass association that contain mature Ponderosa Pine trees as the fire seral species. This plant association type is found on the east aspect of the river corridor where moister conditions prevail. The west aspect has a mixture of Ponderosa Pine/Bluebunch Wheatgrass/Idaho Fescue association with a Douglas Fir/Pinegrass association on mesic aspects of the side drainages. Big Sagebrush/Bluebunch Wheatgrass plant association occurs on dryer, rocky sites. Mountain Mahagony thickets are scattered on the harshest, rocky habitats.

Extensive rock cliffs and talus slides dominate the west aspect of the lower portion of Segment B. These sites provide habitat for many interesting plant species such as Bedstraws, Phacelias and Rock Mustards.

Riparian Vegetation in segment B.

The riparian zone along the river banks is narrow for most of the length of segment B and varies from 50 to 200 feet wide. The widest riparian zones are found toward the top of segment B and through most of Segment A. The riparian plant association types have not been classified on the Malheur National Forest but the dominate plant species are distinctive and the riparian plant associations described here may appear as official plant associations in a later publication. The riparian zones in segment B are dominated by Common Alder and Red-Stemmed Osier Dogwood along the river banks with an understory of various currents and graminoid species. The bottom portion of segment B will have some MockOrange, Roses and Chokecherry shrubs along the river banks where conditions are dry and hot. Small meadow types occur along the river bank or as islands as ecological succession colonizes gravel bars. The succession of these gravel bars can be observed in many different stages and is one of the interesting ecological processes within the river canyon. Wild Mint, Horsetails and Willow-herbs are the first plant species to colonize a gravel bar. These early species are followed by various Sedges and Grasses that catch sediment and build the deeper soils that will produce a dense graminoid meadow habitat. The important graminoid species that colonize the gravel bars are Small-Fruited Bullrush, Woolly Sedge and Mannagrasses. Livestock grazing within the river corridor utilizes these meadow habitats and modifies the shrub plant associations. Shrub plant associations can be replaced with graminoid dominated plant associations by long term, periodic livestock grazing. Significant meadow development appears at the top of Segment B and most of Segment A. Lodgepole Pine becomes a component of the riparian zone as the floodplain gets wider and higher in elevation. The best examples of meadow ecosystems are found in Segment A from the Rd 1675 crossing of the river and then to the north for several miles to the 16 Road crossing at Short Creek Guard Station.

II. SENSITIVE PLANTS

A prefield evaluation of the river corridor was completed and several TES plant species could possibly be within the river corridor. No known TES plant sites are documented for the river but previous surveys have not been done to document any locations. A field survey was done during the 1991 season and specific habitats were checked for sensitive habitats. No sensitive plant populations were found during the field reconnaissance but the survey intensity was not adequate to clear any proposed ground disturbing projects. Any future projects would have to be addressed on a site specific basis and any additional surveys completed. Appendix A shows the sensitive plant species for the Malheur National Forest on the Regional Foresters Sensitive Plant List for 1991. Those species highlighted in bold are considered potential sensitive plant species for the NF Malheur Scenic River Corridor.

III. CONCLUSION

The botanical resources within the river corridor are interesting and merit some attention in the river management plan. I suspect that the species diversity and plant association richness is similar to other Blue Mountain river canyons that drain into the Great Basin Province. No populations of sensitive plants have been documented within the NF Malheur corridor but a possibility exists for future discoveries. A plant list of common plant species that could be encountered within the river corridor is attached as appendix B.

APPENDIX A

MALHEUR NF SENSITIVE PLANT LIST
1991 REGIONAL FORESTERS LIST UPDATE

SPECIES NAME	FED	OR	R6	NH	HABITAT
Allium brandegei	--	--	OR-S	2	LOW ELV ARTR SLOPES
Allium campanulatum	--	--	OR-S	2	MOD-HI BALDS,ABLA
Astragalus atratus v. owyheensis	--	C	OR-S	2	ARTR SITES, LOW ELV
Astragalus diaphanus v. diurnus	--	C	OR-S	1	LOW ELV RIVER, SFJD
Astragalus tegetarioides	C2	C	OR-D	1	ARTR-PIPO, BURNS RD
Botrychium spp	--	C	OR-S	2	MOIST ABGR-PIEN, RIP
Bupleurum americanum	--	--	OR-S	2	SUBALPINE ROCKY
Calochortus longebarbatus v. peckii	C2	--	OR-S	1	DRY-MOIST MEADOWS
Cymopterus nivalis	--	--	OR-D	2	OPEN PLACES,HIGH ELV
Cypripedium fasciculatum		C	OR-S	2	MOIST ABGR TYPES
Dryopteris filix-mas	--	--	OR-D	2	MOIST CW RIP,SEEPS
Geum rossii v. turbinatum	--	--	OR-S	2	ALPINE CLIFFS, SCREE
Lomatium erythrocarpum	C2	C	OR-S	1	HIGH ELV CELE RIDGES
Luina serpentina	C1	LT	OR-D	1	ROCKY SHALES, BVRD
Lupinus lepidus ssp cusickii	C2	C	OR-D	1	LOW ELV ARTR,SE OR.
Lycopodium complanatum	--	--	OR-S	2	MOIST CW TYPES, RIP
Mimulus washingtonensis	C2	C	OR-S	1	SEEPS,LOW ELV,SFJD
Oryzopsis hendersonii	--	C	OR-S	2	ARAR SCABSLANDS
Pellaea bridgesii	--	--	OR-S	2	MOD TO HIGH ROCKS
Pleuropogon oregonus	C2	LT	OR-S	1	WET MEADOWS.LOW ELV
Primula cusickiana	--	--	OR-S	2	OPEN SUBALPINE FORB
Ranunculus oresterus	--	--	OR-S	2	OPEN SUBALPINE FORB
Saxifraga adscendens v. oregonensis	--	--	OR-S	2	ALPINE ROCKY AREAS
Thalictrum alpinum v. hebetum	--	--	OR-S	2	ALPINE MEADOWS
Thelypodium eucosmum	C2	C	OR-S	1	LOW ELV, JUOC-AGSP
Thelypodium howellii v. howellii	--	--	OR-S	2	LOW ELV, SE ORE

NOTES: this list contains plants listed as suspected or documented on the Malheur NF per the 1991 edition of the Region 6 Foresters Sensitive Plant List.

CODES: FED---FEDERAL USFWS STATUS
C1--USFWS HAS INFO TO SUPPORT PROPOSING THE TAXON
C2--USFWS NEEDS MORE INFO TO SUPPORT PROPOSING THE TAXON
3C--DELETED SPECIES FOR USFWS PROTECTION

OR---OREGON STATE LEGAL STATUS (ODA)
LT--TAXA LISTED AS THREATENED FOR OREGON
C--TAXA CANDIDATE FOR OREGON DEPARTMENT OF AGRICULTURE (ODA)

NH---OREGON NATURAL HERITAGE LIST
LIST 1--TAXA ENDANGERED OR THREATENED THROUGHOUT RANGE
LIST 2--TAXA ENDANGERED OR THREATENED IN OREGON, STABLE ELSEWHERE

R6----REGIONAL FORESTERS SENSITIVE PLANT LIST (R6)
OR--ON REGIONAL FORESTERS LIST FOR OREGON
D-DOCUMENTED ON MALHEUR NF PER R6 FORESTERS LIST
S-SUSPECTED ON MALHEUR NF PER R6 FORESTERS LIST

PLANT SPECIES LIST

CODE	FORM	GENUS NAME	SPECIES NAME	COMMON NAME
ABGR	T	Abies	grandis	Grand Fir
ACGL	T	Acer	glabrum	Rocky Mountain Maple
BEOC	T	Betula	occidentalis	Western Birch, Brown Birch
JUOC	T	Juniperus	occidentalis	Western Juniper
LAOC	T	Larix	occidentalis	Western Larch
PIEN	T	Picea	engelmannii	Engelmann Spruce
PICO	T	Pinus	contorta	Lodgepole Pine
PIPO	T	Pinus	ponderosa	Ponderosa Pine
POTR	T	Populus	tremuloides	Quaking Aspen
PSME	T	Pseudotsuga	menziesii	Douglas Fir
ALIN	S	Alnus	incana	Mountain Alder
AMAL	S	Amelanchier	alnifolia	Serviceberry
ARNE	S	Arctostaphylos	nevadensis	Pinemat Manzanita
ARAR	S	Artemisia	arbuscula	Low Sagebrush
ARCA	S	Artemisia	cana	Silver Sagebrush
ARRI	S	Artemisia	rigida	Stiff Sagebrush
ARTR	S	Artemisia	tridentata	Big Sagebrush
BERE	S	Berberis	repens	Oregon Grape
CEVE	S	Ceanothus	velutinus	Snowbrush Ceanothus
CELE	S	Cercocarpus	ledifolius	Curlleaf Mountain Mahogany
CHUM	S	Chimaphila	umbellata	Common Prince's Pine
CHNA	S	Chrysothamnus	nauseosus	Common Rabbitbrush
CHVI	S	Chrysothamnus	viscidiflorus	Green Rabbitbrush
COST	S	Cornus	stolonifera	Red Osier Dogwood
HODU	S	Holodiscus	dumosus	Bush Rockspiraea
JUCO4	S	Juniperus	communis	Common Juniper
LOIN	S	Lonicera	involucrata	Bearberry Honeysuckle
PAMY	S	Pachistima	myrsinites	Myrtle Pachistima
PHLE2	S	Philadelphus	lewisii	Lewis Mockorange
PHMA	S	Physocarpus	malvaceus	Mallow Ninebark
POFR	S	Potentilla	fruticosa	Shrubby Cinquefoil
PREM	S	Prunus	emarginata	Bittercherry
PRVI	S	Prunus	virginiana	Common Chokecherry
PUTR	S	Purshia	tridentata	Antelope Bitterbrush
RHGL	S	Rhus	glabra	Smooth Sumac
RIAU	S	Ribes	aureum	Golden Currant
RICE	S	Ribes	cereum	Wax Currant
RIHU	S	Ribes	hudsonianum	Stinking Currant
RILA	S	Ribes	lacustre	Prickly Currant
RIVI	S	Ribes	viscosissimum	Sticky Currant
ROGY	S	Rosa	gymnocarpa	Baldhip Rose
RONU	S	Rosa	nutkana	Nootka Rose
ROWO	S	Rosa	woodsii	Woods Rose
RUID	S	Rubus	idaeus	Red Raspberry
RUPA	S	Rubus	parviflorus	Western Thimbleberry
SABE	S	Salix	bebbiana	Bebb Willow
SAEX	S	Salix	exigua	Coyote Willow
SAGE	S	Salix	geyeriana	Geyer Willow
SALA2	S	Salix	lasiandra	Pacific Willow
SASC	S	Salix	scouleriana	Scouler Willow
SACE	S	Sambucus	cerulea	Blueberry Elder
SARA	S	Sambucus	racemosa	European Red Elder
SHCA	S	Shepherdia	canadensis	Russet Buffaloberry
SOSC2	S	Sorbus	scopulina	Greenes Mountain-Ash

CODE	FORM	GENUS NAME	SPECIES NAME	COMMON NAME
SPBE	S	Spiraea	betulifolia	Birch Leaved Spiraea
SYAL	S	Symphoricarpos	albus	Common Snowberry
SYOR	S	Symphoricarpos	oreophilus	Mountain Snowberry
TECA	S	Tetradymia	canescens	Gray Horsebrush
VAME	S	Vaccinium	membranaceum	Big Huckleberry
VASC	S	Vaccinium	scoparium	Grouse Huckleberry
CAAM	G-L	Carex	amplifolia	Bigleaf Sedge
CAAT	G-L	Carex	anthrostachya	Bracted Sedge
CAAQ	G-L	Carex	aquatilis	Water Sedge
CAAU	G-L	Carex	aurea	Golden Sedge
CACA4	G-L	Carex	canescens	Hoary Sedge
CACO	G-L	Carex	concinnoides	Northwestern Sedge
CADE	G-L	Carex	deweyana	Dewey's Sedge
CADI	G-L	Carex	disperma	
CADO	G-L	Carex	douglasii	Douglas Sedge
CAGE	G-L	Carex	geyeri	Elk Sedge
CAHO	G-L	Carex	hoodii	Hood Sedge
CAJO	G-L	Carex	jonesii	Jone's Sedge
CALA3	G-L	Carex	lanuginosa	Hairy sedge
CALU	G-L	Carex	luzulina	Woodrush Sedge
CAMI	G-L	Carex	microptera	Smallwing Sedge
CAMU	G-L	Carex	multicostata	Thick-fruited Sedge
CANE	G-L	Carex	nebraskensis	Nebraska Sedge
CAPA	G-L	Carex	pachystachya	Chamisso Sedge
CAPE	G-L	Carex	petasata	Liddon Sedge
CAPRA5	G-L	Carex	praegracilis	Clustered Field Sedge
CARA	G-L	Carex	raynoldsii	Raynold's Sedge
CARO	G-L	Carex	rossii	Ross Sedge
CARO2	G-L	Carex	rostrata	Beaked Sedge
ELAC	G-L	Eleocharis	acicularis	Needle Spikerush
ELPA	G-L	Eleocharis	palustris	Common Spikerush
ELPA2	G-L	Eleocharis	pauciflora	Few-flowered Spikerush
JUAC	G-L	Juncus	acuminatus	Tapered Rush
JUAR	G-L	Juncus	articulatus	Jointed Rush
JUBA	G-L	Juncus	balticus	Baltic Rush
JUDR	G-L	Juncus	drummondii	Drummond Rush
JUEN	G-L	Juncus	ensifolius	Swordleaf Rush
JUME	G-L	Juncus	mertensianus	Merten's Rush
JUOR	G-L	Juncus	orthophyllus	Straight-Lvd Rush
JUTE	G-L	Juncus	tenuis	Slender Rush
LUPA	G-L	Luzula	parviflora	Panicled Woodrush
LUSP	G-L	Luzula	spicata	Spike Woodrush
SCMI	G-L	Scirpus	microcarpus	Small Fruited Bullrush
AGCR	G	Agropyron	cristatum	Crested Wheatgrass
AGIN	G	Agropyron	intermedium	Intermediate Wheatgrass
AGSP	G	Agropyron	spicatum	Bearded Bluebunch Wheatgras
AGAL	G	Agrostis	alba	Redtop
AGDI	G	Agrostis	diegoensis	Thin Bentgrass
AGEX	G	Agrostis	exarata	Spike Bentgrass
AGSC	G	Agrostis	scabra	Winter Bentgrass
AGTE	G	Agrostis	tenuis	Colonial Bentgrass
ALAE	G	Alopecurus	aequalis	Shortawn Foxtail
AREL	G	Arrhenatherum	elatius	Tall Oatgrass
BRBR	G	Bromus	brizaeformis	Rattlesnake Brome

CODE	FORM	GENUS NAME	SPECIES NAME	COMMON NAME
BRCA	G	Bromus	carinatus	California Brome
BRCO	G	Bromus	commutatus	Hairy Brome
BRIN	G	Bromus	inermis	Smooth Brome
BRMO	G	Bromus	mollis	Soft Brome
BRTE	G	Bromus	tectorum	Cheatgrass Brome
CACA	G	Calamagrostis	canadensis	Canada Reedgrass
CARU	G	Calamagrostis	rubescens	Pinegrass
DAGL	G	Dactylis	glomerata	Orchard Grass
DACA	G	Danthonia	californica	California Oatgrass
DASP	G	Danthonia	spicata	Spike Oatgrass
DAUN	G	Danthonia	unispicata	Onespike Oatgrass
DECA	G	Deschampsia	caespitosa	Tufted Hairgrass
DEDA	G	Deschampsia	danthonioides	Annual Hairgrass
DEEL	G	Deschampsia	elongata	Slender Hairgrass
ELCA	G	Elymus	canadensis	Canada Wildrye
ELCI	G	Elymus	cinerus	Giant Wildrye
ELGL	G	Elymus	glaucus	Blue Wildrye
FEID	G	Festuca	idahoensis	Idaho Fescue
FEMI	G	Festuca	microstachys	Small Fescue
FEOC	G	Festuca	occidentalis	Western Fescue
GLBO	G	Glyceria	borealis	Northern Mannagrass
GLEL	G	Glyceria	elata	Tall Mannagrass
GLGR	G	Glyceria	grandis	American Mannagrass
GLST	G	Glyceria	striata	Fowl Mannagrass
HOBR	G	Hordeum	brachyantherum	Northern Meadow Barley
HOJU	G	Hordeum	jubatum	Foxtail Barley
KOCR	G	Koeleria	cristata	Prairie Junegrass
MEBU	G	Melica	bulbosa	Oniongrass
MEFU	G	Melica	fugax	Scab Oniongrass
PHAR	G	Phalaris	arundinacea	Reed Canarygrass
PHPR	G	Phleum	pratense	Timothy
POBU	G	Poa	bulbosa	Bulbous Bluegrass
POCO	G	Poa	compressa	Flat Bluegrass
POFE	G	Poa	fendleriana	Muttongrass
POJU	G	Poa	juncifolia	Alkali Bluegrass
PONE	G	Poa	nervosa	Wheeler Bluegrass
PONE2	G	Poa	nevadensis	Nevada Bluegrass
POPA	G	Poa	palustris	Fowl Bluegrass
POPR	G	Poa	pratensis	Kentucky Bluegrass
POSA3	G	Poa	sandbergii	Sandberg's Bluegrass
SIHY	G	Sitanion	hystrix	Bottlebrush Squirreltail
STLE2	G	Stipa	lemmoni	Lemmon's Needlegrass
STOC	G	Stipa	occidentalis	Western Needlegrass
STTH	G	Stipa	thurberiana	Thurber Needlegrass
TRCA	G	Trisetum	canescens	Tall Trisetum
ACMI	F	Achillea	millefolium	Western Yarrow
ACCO	F	Aconitum	columbianum	Columbia Monkshood
ACAR	F	Actaea	rubra	Baneberry
AGGR	F	Agoseris	grandiflora	Large Flw Agoseris
AGHE	F	Agoseris	heterophylla	Annual Agoseris
ALAC	F	Allium	acuminatum	Tapertip Onion
ALGE2	F	Allium	geyeri	Geyer Onion
ALMA	F	Allium	macrum	Rock Onion
ALMA2	F	Allium	madidum	Meadow Onion

CODE	FORM	GENUS NAME	SPECIES NAME	COMMON NAME
ALPA2	F	Allium	parvum	Dwarf Onion
ALTO	F	Allium	tolmiei	Tolmie Onion
ALVA	F	Allium	validum	Swamp Onion
ALAL	F	Alyssum	alyssoides	Pale Alyssum
AMTE	F	Amsinckia	tessellata	Tessellate Amsinckia
ANMA	F	Anaphalis	margaritacea	Common Pearleverlasting
ANFI	F	Androsace	filiformis	Slender Androsace
ANAR2	F	Angelica	arguta	Sharptooth Angelica
ANCA	F	Angelica	canbyi	Canby Angelica
ANAN	F	Antennaria	anaphaloides	Tall Pussytoes
ANDI	F	Antennaria	dimorpha	Low Pussytoes
ANFL	F	Antennaria	flagellaris	Stolon Pussytoes
ANLU	F	Antennaria	luzuloides	Rush Pussytoes
ANRO	F	Antennaria	rosea	Rosy Pussytoes
ANST	F	Antennaria	stenophylla	Narrow lvd Pussytoes
APAN	F	Apocynum	androsaemifolium	Spreading Dogbane
AQFO	F	Aquilegia	formosa	Red Columbine
ARDI3	F	Arabis	divaricarpa	Spreading Pod Rockcress
ARGL	F	Arabis	glabra	Smooth Rockcress
ARHO	F	Arabis	holboellii	Holboell Rockcress
ARSP2	F	Arabis	sparsiflora	Sickle-pod Rockcress
ARAC2	F	Arenaria	aculeata	Needle leaved Sandwort
ARCO2	F	Arenaria	congesta	Ballhead Sandwort
ARMA3	F	Arenaria	macrophylla	Common Large leaved Sandwor
ARCH	F	Arnica	chamissonis	Chamisso Arnica
ARCO	F	Arnica	cordifolia	Heartleaf Arnica
ARFU	F	Arnica	fulgens	Shining Arnica
ARLA	F	Arnica	latifolia	Broadleaf Arnica
ARMO	F	Arnica	mollis	Hairy Arnica
ARSO	F	Arnica	sororia	Twin Arnica
ARLU	F	Artemisia	ludoviciana	Louisiana Sagebrush
ASCA	F	Aster	canescens	Hoary Aster
ASCO	F	Aster	conspicuus	Showy Aster
ASIN	F	Aster	integrifolius	Thickstem Aster
ASMO	F	Aster	modestus	Great Northern Aster
ASOC	F	Aster	occidentalis	Western Aster
ASPE	F	Aster	perelegans	Elegant Aster
ASSU2	F	Aster	subspicatus	Douglas Aster
ASFI	F	Astragalus	filipes	Hanging Pod Milkvetch
ASLE	F	Astragalus	lentiginosus	Specklepod Milkvetch
ASPU	F	Astragalus	purshii	Pursh Milkvetch
ASRE	F	Astragalus	reventus	Long Lvd Milkvetch
ATFI	F	Athyrium	filix-femina	Ladyfern
ATPU	F	Athysanus	pusillus	Sandweed
BAHI	F	Balsamorhiza	hirsuta	Dissected leaved Balsamroot
BASA	F	Balsamorhiza	sagittata	Arrowleaf Balsamroot
BAOR	F	Barbarea	orthoceras	Wintercress
BERU	F	Besseya	rubra	Besseya
BLSC	F	Blepharipappus	scaber	Tidytips
BODE	F	Boisduvalia	densiflora	Dense Spikeprimrose
BRHY	F	Brodiaea	hyacinthina	Hyacinth Brodiea
CAEU2	F	Calochortus	eurycarpus	Purple spot Mariposa
CAMA	F	Calochortus	macrocarpus	Lavender Mariposa
CABU2	F	Calypso	bulbosa	Fairy Orchid

CODE	FORM	GENUS NAME	SPECIES NAME	COMMON NAME
CAQU	F	Camassia	quamash	Common Camas
CACO2	F	Cardamine	cordifolia	Large Mtn. Bittercress
CAOL	F	Cardamine	oligosperma	Little Western Bittercress
CAPE4	F	Cardamine	pensylvanica	Pennsylvania Bittercress
CADR2	F	Cardaria	draba	Whitetop
CAAP2	F	Castilleja	applegatei	Wavy-lvd Paintbrush
CACH2	F	Castilleja	chromosa	Desert Paintbrush
CALI2	F	Castilleja	linariaefolia	Wyoming Paintbrush
CAMI2	F	Castilleja	miniata	Scarlet Paintbrush
CAOR3	F	Castilleja	oresbia	Sagebrush Paintbrush
CAPA5	F	Castilleja	pallescens	Pale Paintbrush
CEVI	F	Cerastium	viscosum	Sticky Chickweed
CHDO	F	Chaenactis	douglasii	Douglas Chaenactis
CHGR	F	Cheilanthes	gracillima	Lace Lipfern
CHAL	F	Chenopodium	album	Lambsquarters Goosefoot
CHBO	F	Chenopodium	botrys	Jerusalem Oak Goosefoot
CHLE2	F	Chrysanthemum	leucanthemum	Oxeyedaisy
CIAL	F	Circaea	alpina	Alpine Circaea
CICA2	F	Cirsium	canovirens	Gray-Green Thistle
CISC	F	Cirsium	scariosum	Meadow Thistle
CIVU	F	Cirsium	vulgare	Bull Thistle
CLPU	F	Clarkia	pulchella	Elkhorns Clarkia
CLRH	F	Clarkia	rhomboidea	Common Clarkia
CLLA	F	Claytonia	lanceolata	Lanceleaf Springbeauty
CLHI	F	Clematis	hirsutissima	Sugar Bowls
COPA	F	Collinsia	parviflora	Blue-Eyed Mary
COGR2	F	Collomia	grandiflora	Large Flw Collomia
COLI2	F	Collomia	linearis	Narrow Lvd Collomia
COCA2	F	Conyza	canadensis	Horseweed
COST2	F	Corallorhiza	striata	Stripped Coralroot
COTR	F	Corallorhiza	trifida	Early Coral-Root
CRAC	F	Crepis	acuminata	Tapertip Hawksbeard
CROC	F	Crepis	occidentalis	Western Hawksbeard
CRCE	F	Cryptantha	celosioides	Northern Oreocarya
CRIN2	F	Cryptantha	intermedia	Intermediate Oreocarya
CRCR	F	Cryptogramma	crispa	Cliff Brake
CYFR	F	Cystopteris	fragilis	Brittle Bladderfern
DEDE	F	Delphinium	depauperatum	Slim Larkspur
DENU3	F	Delphinium	nuttallianum	Common Larkspur
DEPI	F	Descurainia	pinnata	Pinnate Tansymustard
DERI	F	Descurainia	richardsonii	Western Tansymustard
DISY	F	Dipsacus	sylvestris	Teasel
DITR	F	Disporum	trachycarpum	Wartberry Fairybell
DOCO	F	Dodecatheon	conjugens	Early Shootingstar
DRVE2	F	Draba	verna	Spring Draba
EPAN	F	Epilobium	angustifolium	Fireweed
EPMI	F	Epilobium	minutum	Small Flw Willow Herb
EPPA	F	Epilobium	paniculatum	Autumn Willowweed
EPWA	F	Epilobium	watsonii	Western Willowweed
EQAR	F	Equisetum	arvense	Field Horsetail
EQHY	F	Equisetum	hyemale	Scouringrush
ERCO3	F	Erigeron	corymbosus	Purpledaisy Fleabane
EREA	F	Erigeron	eatonii	Eaton Fleabane
EREN	F	Erigeron	engelmannii	Engelmanii Fleabane

CODE	FORM	GENUS NAME	SPECIES NAME	COMMON NAME
ERFI	F	Erigeron	filifolius	Threadleaf Fleabane
ERIN2	F	Erigeron	inornatus	Rayless Fleabane
ERLI	F	Erigeron	linearis	Lineleaf Fleabane
ERPE	F	Erigeron	peregrinus	Peregrine Fleabane
ERPH	F	Erigeron	philadelphicus	Philadelphia Fleabane
ERCO5	F	Eriogonum	compositum	Heart leaved Eriogonum
EREL2	F	Eriogonum	elatum	Tall Buckwheat
ERHE	F	Eriogonum	heracleoides	Wyeth Eriogonum
ERST2	F	Eriogonum	strictum	Panicle Eriogonum
ERUM	F	Eriogonum	umbellatum	Sulfur Eriogonum
ERVI	F	Eriogonum	vimineum	Annual Buckwheat
ERLA	F	Eriophyllum	lanatum	Woolly Eriophyllum
ERCI	F	Erodium	cicutarium	Alfilaria,Filaree,Storks-Bi
ERAS	F	Erysimum	asperum	Wallflower
ERGR	F	Erythronium	grandiflorum	Lambstongue Fawnlily
FRVE	F	Fragaria	vesca	Common Woods Strawberry
FRVI	F	Fragaria	virginiana	Weedy Blue Strawberry
FRAL2	F	Frasera	albicaulis	White Stemmed Frasera
FRAT	F	Fritillaria	atropurpurea	Chocolate Lily
FRPU	F	Fritillaria	pudica	Yellow Bell
GAAP	F	Galium	aparine	Catchweed Bedstraw
GABI	F	Galium	bifolium	Twinleaf Bedstraw
GABO	F	Galium	boreale	Northern Bedstraw
GATR	F	Galium	triflorum	Sweetscented Bedstraw
GAHU2	F	Gayophytum	humile	Dwarf Gayophytum
GARA	F	Gayophytum	ramosissimum	Hairstem Groundsmoke
GEAF	F	Gentiana	affinis	Oblong Lvd Gentian
GECA	F	Gentiana	calycosa	Mt. Bog Gentian
GESI	F	Gentiana	simplex	One-Flw Gentian
GEVI	F	Geranium	viscosissimum	Sticky Geranium
GEMA	F	Geum	macrophyllum	Largeleaf Avens
GETR	F	Geum	triflorum	Prairiesmoke Avens
GIAG	F	Gilia	aggregata	Red Rocket Gilia
GOOB	F	Goodyera	oblongifolia	Rattlesnake Orchid
GRSQ	F	Grindelia	squarrosa	Curlycup Gumweed
HADI2	F	Habenaria	dilatata	White bog Orchid
HAUN	F	Habenaria	unalascensis	Green Rein-Orchid
HACU	F	Hackelia	cusickii	Cusick's Stickseed
HAJE	F	Hackelia	jessicae	Jessica Stickseed
HACA	F	Haplopappus	carthamoides	Scab Haplopappus
HAHI	F	Haplopappus	hirtus	Sticky Goldenweed
HALA	F	Haplopappus	lanuginosus	Wooly Goldenweed
HAST2	F	Haplopappus	stenophyllus	Narrow-Lvd Goldenweed
HEUN	F	Helianthella	uniflora	Oneflower Helianthella
HELA	F	Heracleum	lanatum	Common Cowparsnip
HEPU	F	Hesperochiron	pumilus	Centaur Flower
HECY	F	Heuchera	cylindrica	Basalt Alumroot
HIAL2	F	Hieracium	albertinum	Yellow Hawkweed
HIAL	F	Hieracium	albiflorum	White Hawkweed
HOUM	F	Holosteum	umbellatum	Jagged Chickweed
HOFU	F	Horkelia	fusca	Tawny Horkelia
HYCA	F	Hydrophyllum	capitatum	Ballhead Waterleaf
HYFO	F	Hypericum	formosum	Western St. Johnswort
ILRI	F	Iliamna	rivularis	Streambank Globemallow

CODE	FORM	GENUS NAME	SPECIES NAME	COMMON NAME
IRMI	F	Iris	missourensis	Rockymountain Iris
KEGA	F	Kelloggia	galioides	Kelloggia
LASE	F	Lactuca	serriola	Prickly Lettuce
LANE	F	Lathyrus	nevadensis	Sierra Peavine
LAPA2	F	Lathyrus	pauciflorus	Fewflowered Peavine
LEDE	F	Lepidium	densiflorum	Prairie Pepperweed
LEPE	F	Lepidium	perfoliatum	Clasping Peppergrass
LEOC	F	Lesquerella	occidentalis	Western Bladderpod
LERE	F	Lewisia	rediviva	Bitterroot Lewisia
LICA2	F	Ligusticum	canbyi	Canby Licoriceroot
LIGR	F	Ligusticum	grayi	Grays Licoriceroot
LITE2	F	Ligusticum	tenuifolium	Fernleaf Licoriceroot
LINU	F	Linanthastrum	nuttallii	Linanthastrum
LIPE	F	Linum	perenne	Wild Blue Flax
LIBO	F	Listera	borealis	Northern Twayblade
LICO2	F	Listera	convallarioides	Broadlip Listera
LIBU	F	Lithophragma	bulbifera	Bulbous Woodlandstar
LIPA	F	Lithophragma	parviflora	Smallflower Woodlandstar
LIRU	F	Lithospermum	ruderale	Stoneseed
LOCO2	F	Lomatium	cous	Cous Biscuitroot
LODI2	F	Lomatium	dissectum	Fern lvd Biscuitroot
LODO	F	Lomatium	donnellii	Donelli's Biscuitroot
LOGO	F	Lomatium	gormannii	Gorman's Biscuitroot
LOGR	F	Lomatium	grayi	Gray's Desert Parsley
LOLE	F	Lomatium	leptocarpum	Bicolor Biscuitroot
LOMA	F	Lomatium	macrocarpum	Big Seed Biscuitroot
LONU	F	Lomatium	nudicaule	Barestem Lomatium
LOTR	F	Lomatium	triternatum	Nineleaf Desert Parsley
LOVA	F	Lomatium	vaginatum	Broadsheath Biscuitroot
LOPU	F	Lotus	purshianus	Trefoil
LUCA	F	Lupinus	caudatus	Tailcup Lupine
LULA2	F	Lupinus	laxiflorus	Spurred Lupine
LUSA	F	Lupinus	saxosus	Rock Lupine
MACA2	F	Machaeranthera	canescens	Aster
MAGL	F	Madia	glomerata	Cluster Tarweed
MAGR	F	Madia	gracilis	Slender Tarweed
MANE2	F	Malva	neglecta	Round-Lvd Mallow
MESA	F	Medicago	sativa	Alfalfa
MEAL	F	Melilotus	alba	White Sweetclover
MEOF	F	Melilotus	officinalis	Yellow Sweetclover
MEAR3	F	Mentha	arvensis	Field Mint
MEAL2	F	Mentzelia	albicaulis	Whitestem Mentzelia
MECI	F	Mertensia	ciliata	Mountain Bluebells
MELO	F	Mertensia	longiflora	Small Bluebells
MEOB	F	Mertensia	oblongifolia	Oblongleaf Bluebells
MEPA	F	Mertensia	paniculata	Panicle Bluebells
MINU	F	Microseris	nutans	Nodding Microseris
MITR	F	Microseris	troximoides	Wavy-leaves Microseris
MIGR	F	Microsteris	gracilis	Pink Annual Phlox
MICU	F	Mimulus	cusickii	Cusick's Monkeyflower
MIGU	F	Mimulus	guttatus	Common Monkeyflower
MILE	F	Mimulus	lewisii	Lewis Monkeyflower
MIMO	F	Mimulus	moschatus	Muskplant Monkeyflower
MINA	F	Mimulus	nanus	Dwarf Monkeyflower

CODE	FORM	GENUS NAME	SPECIES NAME	COMMON NAME
MIPR	F	Mimulus	primuloides	Primrose Monkeyflower
MIPE	F	Mitella	pentandra	Green Flw Mitrewort
MIST2	F	Mitella	stauropetala	White Flw Mitrewort
MITR2	F	Mitella	trifida	Tri lobed White Flw Mitrewo
MOOD	F	Monardella	odoratissima	Pacific Monardella
MOCH	F	Montia	chamissoi	Chamissoi Indianlettuce
MOCO	F	Montia	cordifolia	Broadleaf Montia
MOLI	F	Montia	linearis	Lineleaf Indianlettuce
MOPE	F	Montia	perfoliata	Miners-lettuce
MYMI	F	Myosotis	micrantha	Scorpion Grass
NABR	F	Navarretia	breweri	Yellow Navarretia
NADI	F	Navarretia	divaricata	White Navarretia
NEPE	F	Nemophila	pedunculata	Nemophila
OEAN	F	Oenothera	andina	Obscure Eveningprimrose
OEBO	F	Oenothera	boothii	Booth's Evening Primrose
OEBR	F	Oenothera	breviflora	Short flw Evening Primrose
OEHE	F	Oenothera	heterantha	Long Leaved Evening Primros
ORFA2	F	Orobanche	fasciculata	Clustered Broomrape
ORUN	F	Orobanche	uniflora	Oneflowered Broomrape
ORHI	F	Orthocarpus	hispidus	Hairy Owlclover
ORLU	F	Orthocarpus	luteus	Yellow Owlclover
OSCH	F	Osmorhiza	chilensis	Stickseed Sweet Cicely
OSOC	F	Osmorhiza	occidentalis	Western Sweet-cicely
PABR	F	Paeonia	brownii	Brown's Paeony
PAFI	F	Parnassia	fimbriata	Rocky Mountain Parnassia
PEBR	F	Pedicularis	bracteosa	Bracted Lousewort
PECO2	F	Pedicularis	contorta	Coiled Parrotsbeak
PEGR	F	Pedicularis	groenlandica	Elephant-head
PERA	F	Pedicularis	racemosa	Sickletop Pedicularis
PEAT	F	Penstemon	attenuatus	Meadow Penstemon
PEDE	F	Penstemon	deustus	White Penstemon
PEFR3	F	Penstemon	fruticosus	Lavender rock Penstemon
PEGA	F	Penstemon	gairdneri	Shrubby Penstemon
PEHU	F	Penstemon	humilis	Slender Penstemon
PEPR	F	Penstemon	procerus	Littleflower Penstemon
PERY	F	Penstemon	rydbergii	Rydberg's Penstemon
PESP	F	Penstemon	speciosus	Royal Penstemon
PEBO	F	Perideridia	bolanderi	Bolander False-Caraway
PEGA2	F	Perideridia	gairdneri	Yampa
PHHA	F	Phacelia	hastata	White-Leaved Phacelia
PHHE	F	Phacelia	heterophylla	Varileaf Phacelia
PHLI	F	Phacelia	linearis	Threadleaf Phacelia
PHRA	F	Phacelia	ramosissima	Long-branched Phacelia
PHHO	F	Phlox	hoodii	Hoods Phlox
PHLO	F	Phlox	longifolia	Longleaf Phlox
PHCH	F	Phoenicaulis	cheiranthoides	Daggerpods
PLLA	F	Plantago	lanceolata	Buckhorn Plantain
PLMA	F	Plantago	major	Nippleseed Plantain
PLMA3	F	Plectritis	macrocera	Longhorn Plectritis
POOC	F	Polemonium	occidentale	Western Polemonium
POPU	F	Polemonium	pulcherrimum	Showy Polemonium
POBI	F	Polygonum	bistortoides	American Bistort
POHE	F	Polygonum	heterosepalum	Knotweed
POMU	F	Polystichum	munitum	Western Swordfern

CODE	FORM	GENUS NAME	SPECIES NAME	COMMON NAME
POGL	F	Potentilla	glandulosa	Gland Cinquefoil
POGR	F	Potentilla	gracilis	Northwest Cinquefoil
PRVU	F	Prunella	vulgaris	Common Selfheal
PTAQ	F	Pteridium	aquilinum	Braken Fern
PTAN	F	Pterospora	andromedea	Woodland Pinedrops
PYAS	F	Pyrola	asarifolia	Large Pyrola
PYPI	F	Pyrola	picta	Whitevein Pyrola
PYSE	F	Pyrola	secunda	Sidebells Pyrola
PYUN	F	Pyrola	uniflora	Woodnymph Pyrola
PYCH	F	Pyrola	virens	Green Pyrola
RAAL	F	Ranunculus	alismaefolius	Plantainleaf Buttercup
RAAN	F	Ranunculus	andersonii	Anderson Buttercup
RAAQ	F	Ranunculus	aquatilis	Watercrowfoot Buttercup
RAGL	F	Ranunculus	glaberrimus	Sagebrush Buttercup
RAOC	F	Ranunculus	occidentalis	Western Buttercup
RATE	F	Ranunculus	testiculatus	Horned Buttercup
RAUN2	F	Ranunculus	uncinatus	Wood Buttercup
RONA	F	Rorippa	nasturtium-aquaticum	Watercress
RUAC	F	Rumex	acetosella	Sheep Sorrel
RUCR	F	Rumex	crispus	Curly Dock
RUSA	F	Rumex	salicifolius	Willow Dock
SAOC	F	Sanguisorba	occidentalis	Burnet
SAAR4	F	Saxifraga	arguta	Brook Saxifrage
SAIN	F	Saxifraga	integrifolia	Small Saxifrage
SAOR	F	Saxifraga	oregana	Large Saxifrage
SCAN	F	Scutellaria	angustifolia	Narrowleaf Skullcap
SCGA	F	Scutellaria	galericulata	Willowweed Skullcap
SELA2	F	Sedum	lanceolatum	Stonecrop
SEST	F	Sedum	stenopetalum	Wormleaf Stonecrop
SEDE3	F	Selaginella	densa	Common Selaginella Moss
SECA	F	Senecio	canus	Woolly Groundsel
SECY	F	Senecio	cymbalarioides	Cleftleaf Groundsel
SEHY2	F	Senecio	hydrophiloides	Meadow Groundsel
SEHY	F	Senecio	hydrophilus	Water Groundsel
SEIN	F	Senecio	integerrimus	Lambstongue Groundsel
SEPS	F	Senecio	pseudaureus	Swamp Groundsel
SESE	F	Senecio	serra	Butterweed Groundsel
SETR	F	Senecio	triangularis	Arrowleaf Groundsel
SIOR	F	Sidalcea	oregana	Oregon Checkermallow
SIDO2	F	Silene	douglasii	Douglas Silene
SIME	F	Silene	menziesii	Menzies Silene
SIOR2	F	Silene	oregana	Oregon Silene
SIAL	F	Sisymbrium	altissimum	Tumblemustard
SIDO	F	Sisyrinchium	douglasii	Douglas Blue-Eyedgrass
SMRA	F	Smilacina	racemosa	Feather Solomonplume
SMST	F	Smilacina	stellata	Starry Solomonplume
SOCA	F	Solidago	canadensis	Canada Goldenrod
SOOC2	F	Solidago	occidentalis	Western Goldenrod
SPGR2	F	Sphaeralcea	grossulariaefolia	Gooseberryleaf Globemallow
SPCA	F	Sphenosciadium	capitellatum	Swamp White-heads
SPRO	F	Spiranthes	romanzoffiana	Continental Ladiestresses
STCR	F	Stellaria	crispa	Crisped Starwort
STJA	F	Stellaria	jamesiana	Sticky Chickweed
STLO	F	Stellaria	longipes	Longstalk Starwort

CODE	FORM	GENUS NAME	SPECIES NAME	COMMON NAME
STAM	F	Streptopus	amplexifolius	Claspleaf Twistedstalk
TAOF	F	Taraxacum	officinale	Common Dandelion
THOC	F	Thalictrum	occidentale	Western Meadowrue
THAR	F	Thlaspi	arvense	Field Pennycress
THFE	F	Thlaspi	fendleri	Blue Pennycress
THCU	F	Thysanocarpus	curvipes	Fringe Pod
TRDU	F	Tragopogon	dubius	Salsify
TRCY	F	Trifolium	cyathiferum	Cup Clover
TRER	F	Trifolium	eriocephalum	Woollyhead Clover
TRLO	F	Trifolium	longipes	Longstalk Clover
TRMA	F	Trifolium	macrocephalum	Bighead Clover
TRWO2	F	Trifolium	wormskjoldi	Spring Bank-Clover
TYLA	F	Typha	latifolia	Common Cattail
URDI	F	Urtica	dioica	Stinging Nettle
VADI	F	Valeriana	dioica	Valerian
VAED	F	Valeriana	edulis	Edible Valerian
VECA	F	Veratrum	californicum	California Falsehellebore
VETH	F	Verbascum	thapsus	Flannel Mullein
VEAM	F	Veronica	americana	American Speedwell
VESE	F	Veronica	serpyllifolia	Thymeleaf Speedwell
VIAM	F	Vicia	americana	American Vetch
VIAD	F	Viola	adunca	Small Blue Violet
VIGL	F	Viola	glabella	Pioneer Violet
VINU	F	Viola	nuttallii	Nuttall Violet
VIOR2	F	Viola	orbiculata	Roundleaf Violet
VIPU	F	Viola	purpurea	Goosefoot Violet
WOOR	F	Woodsia	oregana	Oregon Woodsia
WYAM	F	Wyethia	amplexicaulis	Mule's Ears Wyethia
WYHE	F	Wyethia	helianthoides	White Head Wyethia
ZIEL	F	Zigadenus	elegans	Mountain Death Camas
ZIPA	F	Zigadenus	paniculatus	Foothill Deathcamas
ZIVE	F	Zigadenus	venenosus	Meadow Death Camas

Appendix E

ENVIRONMENTAL ASSESSMENT

United States
Department of
Agriculture

FOREST SERVICE

July 3, 1992

ENVIRONMENTAL ASSESSMENT

NORTH FORK MALHEUR SCENIC RIVER

MALHEUR NATIONAL FOREST

John Day, Oregon

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Chapter One

Purpose and Need

Introduction

The Omnibus Oregon Wild and Scenic Rivers Act of 1988 added a portion of the North Fork Malheur River to the National Wild and Scenic Rivers System. The designated section runs from the river's headwater to the Malheur National Forest boundary.

Legislation requires the USDA Forest Service to develop a management plan for the river within three years. This environmental assessment is being prepared in compliance with the National Environmental Policy Act of 1969 and the Council on Environmental Quality regulations (40 CFR 1500-1508).

The objective of this environmental assessment, its purpose and need, is to provide the decision maker with sufficient information to select a management strategy for the North Fork Malheur River. It will be incorporated into the river management plan. To comply with the Wild and Scenic River Act, this plan must provide long-term protection of attributes which led to scenic river designation.

Preparation of the environmental assessment also enabled interested members of the public to participate in scenic river planning.

The North Fork Malheur River Management Plan will direct activities in the designated river corridor until the Malheur National Forest Land and Resource Management Plan is revised and direction is incorporated into the new Forest Plan through the amendment process.

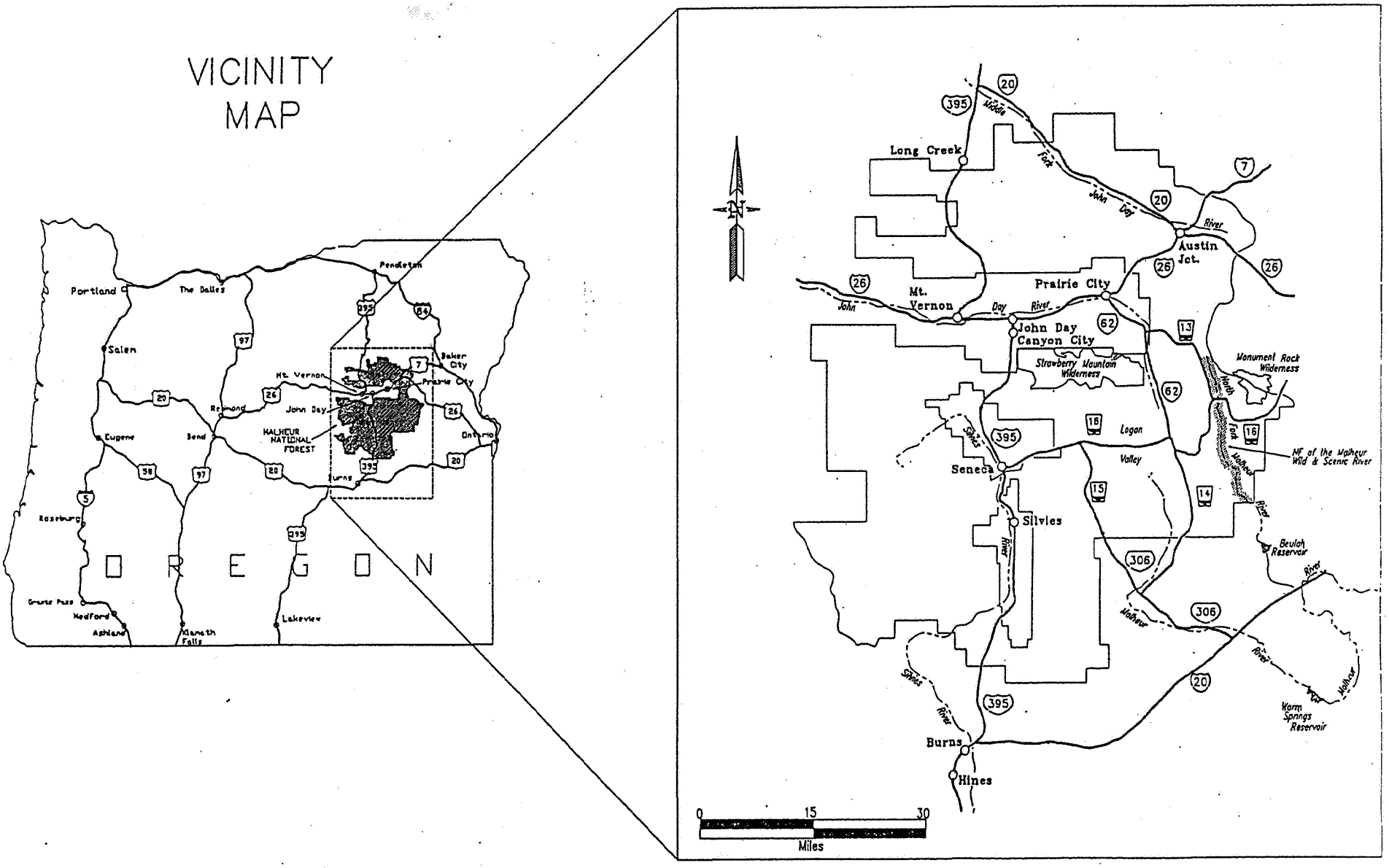
To be included in the national Wild and Scenic River System a stream must possess river related values which the Act describes as "outstandingly remarkable."

Scenery and geology were the two values initially cited by Congress as reasons for including the North Fork Malheur River in the National Wild and Scenic River System. Following a detailed Resource Assessment by the North Fork Interdisciplinary Planning Team, completed in January 1992, two other values were determined to be outstandingly remarkable, the fishery and wildlife habitat.

Because of these attributes, the North Fork Malheur has joined the ranks of rivers that, in the words of the Act, "shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations."

Rivers in the Wild and Scenic River System are classified according to the degree to which they have been altered by humans. The categories are Wild, Scenic, and Recreation Rivers. Scenic Rivers, the classification the North Fork Malheur has received, are thus defined by the Act: "Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shore-

VICINITY MAP



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lines largely undeveloped, but accessible in places by roads."

The North Fork Malheur River flows south through the Malheur National Forest from headwater streams at elevations above 8,000 feet in the Blue Mountains.

River Corridor Boundaries

The establishment of river corridor boundaries in 1989 and 1990 involved members of the public and several interested groups. In March 1989 a letter describing the process was sent to potentially interested groups and individuals.

A working group representing timber and livestock interests, environmentalists, the Oregon Department of Fish and Wildlife, and the Forest Service convened. After five meetings, four alternatives were developed and evaluated. The current boundary was selected by the Regional Forester in March of 1990.

The primary objective in establishing the boundaries was to protect the outstandingly remarkable values identified in the Act, scenic and geologic. The total size of the corridor was limited by Congress to an average of less than 320 acres per river mile. The resource inventory information with which these values were assessed was somewhat limited.

Reaching consensus about how far to go up into the headwaters to establish the northern boundary was difficult. In 1990 the northern terminus of the river corridor was set at the Forest Road 268 crossing and both forks of the headwaters were included in Section 16 of the corridor. Most of the river drainage above this road crossing has no perennial flow. It was determined that outstandingly remarkable values which grace the lower river are not found there. These judgements and the correction of a mapping error resulted in a reduction in the length of the designated river from 25.5 miles, indicated in the legislation, to 22.9 miles.

There was an opportunity to consider changes to this and other portions of the boundary during the resource assessment stage of this planning effort. Change was not considered necessary.

There are 7,034 acres within the scenic river boundary, 1,541 acres are in Baker County, 5,493 acres in Grant County. There is an average of 307 acres per river mile in the corridor.

The North Fork Campground, which provides five designated camp sites, and Crane Crossing Camp are within the boundary. Twelve miles of the North Fork Malheur River Trail and one fourth mile of the Elk Flat Trail are within the corridor.

The corridor is located on National Forest lands in Sections 16, 21, 27, 28, 33, and 34, of T. 14 S., R. 35 1/2 E., Sections 3, 10, 11, 14, 15, 22, 23, 26, 27, 35, and 36 of T. 15 S., R. 35 1/2 E., Sections 2, 3, 11, 14, 23, 25, 26, and 36 of T. 16 S., R. 35 E., Sections 30 and 31, T. 16 S., R. 36E., and Sections 1, 6, 7, 8, 12, 16, 17, 18, 20, and 21 of T. 17 S., R. 36 E., W.M.

Proposed Action

Decisions which must be made include:

- Methods to protect and enhance outstandingly remarkable and significant river-related values.

- Determination of a desired future condition for all aspects of the scenic river corridor.

Short-term and long-term direct and indirect effects and the cumulative effects of past, present, and reasonably foreseeable future actions of implementing five management alternatives are disclosed. The management plan provides direction for the next 10 to 15 years but the long-term effects (50 to 200 years) of alternatives are also considered.

Stages in the Environmental Assessment process included:

* Scoping
* Resource Assessment
* Identification of Desired Future Condition
* Issue Development
* Data Collection
* Alternative Development
* Disclosure of Effects of Implementing Alternatives
* Determination of a Proposed Decision and Finding of No Significant Impact (FONSI)
* Decision of Responsible Official
* Development and Implementation of the Management Plan
* Monitoring Effects of Implementation

Management Plan

One of the alternatives in this environmental assessment, or a combination of elements from several alternatives, will be selected as the best strategy for managing the North Fork Malheur Scenic River. It will serve as the basis for the North Fork Malheur Scenic River Management Plan.

The Forest Plan

The Malheur Forest Land and Resource Management Plan, used in conjunction with Forest Service manuals and handbooks and the Pacific Northwest Regional Guide, will direct activities on the Malheur National Forest for the next 10 to 15 years. It contains the goals, objectives, standards and guidelines for activities in 25 Management Areas on the Forest.

Each Management Area has different goals, resource potentials, and limitations. Overlap is inescapable and when a specific piece of land is included in several management areas priority is assigned. The hierarchy is established primarily by: established authority (Congress or the Forest Supervisor), designated use, and Forest requirements.

Classified Wild and Scenic Rivers, Management Area 22, is number two in the hierarchy and contains lands which could be considered riparian, old growth, recreation, rangeland, or visual corridor. Because of Congressional designation, all are to be managed with the standards and guidelines of the Wild and Scenic River Management area.

The North Fork Malheur Scenic River Management Plan will constitute an amendment to the Malheur Forest Plan. One of the central elements of the Forest Plan was the identification of a desired future condition for each of the 25 Management Areas on the Forest. An expanded and refined description of the desired future for the scenic river corridor is given in Chapter 6.

In preparing Chapter 6, planners reviewed the objectives of allocations which had been assigned to the river corridor prior to scenic river designation. They then projected into the future conditions which could reasonably be expected to materialize under each of the five management alternatives.

Values and Issues

In March of 1991, 500 individuals and groups received a letter describing the river planning process and asking for assistance in identifying key issues. Interested people or groups were invited to meet with the river planner.

Similar solicitations were made via the media and meetings were held with the Grant County Court, the Grant County Stockgrowers' Board of Directors, the Burns Paiute Tribal Council, and the Grant County Conservationists. Open houses were held in John Day and Burns and there was a joint public meeting with the Bureau of Land Management.

Approximately 75 responses were received from the public. From this and the contributions of land managers, the list of issues displayed below was developed.

Geology & Scenery

The river corridor generally appears natural, altered only slightly by human activities. Alternation of this condition as a result of timber harvest and road or campground construction, could affect scenic qualities and the character of the setting.

Natural processes like ecological succession, insect epidemics, or wildfires can also change the character of the landscape.

There may be opportunities to enhance views of geologic features, canyon walls, old stands of trees, and the river by removing or adding screening cover.

Addressing this issue involves determining how much modification of the landscape would be appropriate to achieve long-term protection and enhancement of these scenic values. All areas seen from the river, meadows adjacent to the river, and the North Fork Malheur River Trail which are outside the scenic river corridor are in Management Area 14, Visual Corridor.

Fisheries, Botany, and Wildlife

Road construction, recreational developments, timber management, and prescribed fire could affect important habitat elements for sensitive, featured, and indicator wildlife species. This includes microhabitats, riparian zones, meadows, and big game winter range.

Rivers commonly provide crucial biological connectivity corridors. Actions which sever these corridors may reduce the biodiversity of the ecosystem. Elements of habitat connectivity for featured and indicator species include immigration, emigration, genetic dispersal, foraging and hunting areas, migrational routes, and nesting areas.

There may be existing and potential habitats within the river corridor for threatened or endangered species such as the northern bald eagle. Bull trout and redband trout, two species on the Regional Forester's sensitive species list, are known to inhabit the river and some tributary streams. Proposed actions may affect these habitats and species dependent upon them.

Activities such as timber harvest and road construction may affect old-growth timber stands, which provide essential habitat components for associated wildlife species. Old growth also contributes significantly to scenic quality and landscape diversity in the river corridor.

Grazing by Domestic Livestock

Section 12 (b) of the Wild and Scenic Rivers Act allows existing privileges, such as grazing permits, to continue in designated river corridors, unless the grazing permittee consents to withdrawal.

Current grazing utilization levels routinely exceed Forest Plan standards in some riparian areas. Plant composition and vigor have been impaired to various degrees. Soil instability and compaction may be increasing with current grazing practices.

Effects can include increased sediment transported into the river and a reduction in riparian vegetation.

The livestock industry and others have expressed concern about the possible curtailment of traditional grazing practices. Seasons of use and utilization levels of allotments adjacent to the rivers could be modified, existing range improvements could be removed, or grazing could be

excluded from the corridor. Additional range improvements could also be constructed.

There are existing water diversions and irrigation systems within the North Fork Malheur river corridor maintained by permittees to increase forage for livestock. They are described in the discussion of water quality.

There is a cabin, a livestock pasture, and a bridge once authorized by special use permit within the North Fork Malheur River corridor. These structures are associated with the North Fork Grazing Allotment and may be affecting scenic and other river values.

Conflicts between recreationists and cattle sometimes occur. Problems include trampled and eaten vegetation in campsites, displaced wildlife, noise, dusty trails, and cow manure. Cattle also increase trail maintenance costs.

Timber Management

Timber may be harvested within scenic river corridors but managers must respect values which led to the special designation. This may require the development of special management practices and prescriptions.

Addressing the timber issue involves deciding how much, if any, land within the corridor is suitable for timber management and how much, if any, should be harvested. These decisions could have some effect on the Forest's suitable timber base and local timber supply.

Forest Health

Years of fire suppression, livestock grazing, and some timber harvest have altered the natural character of the forest vegetation. Timber harvest has been a less significant factor in the corridor than elsewhere on the forest because very little occurred.

Climax species, such as white fir and Douglas fir occupy some sites once dominated by ponderosa pine. These species, once limited by fire, are generally more susceptible to defoliation and death due to insects and are more prone to diseases than ponderosa pine. The multi-storied condition of these stands also make them more vulnerable to insects. The risk of catastrophic, stand replacing wildfire is increasing.

The loss of vigor and mortality in some pine stands, the result of density created by the exclusion of fire, has invited bark beetle attack and the death of many groups of trees.

Much of the overstory is composed of old trees which will die naturally over the next 50 to 200 years. On some sites it will be years before replacement trees become large. The character of the corridor's scenery and wildlife habitat will change in the interim.

Dead trees in the river corridor have increased fuel loadings and the possibility of catastrophic wildfire. This poses a threat to both the scenic river corridor and to adjacent lands.

Stand structure and species composition would be affected in different ways by timber management or the absence of timber management and by fire or the absence of fire.

Addressing this issue requires the addition of forest health to concerns about scenic and wildlife values in timber management planning for the corridor.

Adjacent Activities

Management activities outside the corridors can affect scenic river values and river management can affect activities and resources on adjacent lands.

Addressing this issue will involve reviewing standards and guidelines for activities in adjacent

management areas to see if they are compatible with scenic river values. This analysis will be part of every site specific project proposal. The effects of river management on land outside the corridor, including non-federal landownerships, must also be determined.

Access

Future access needs for the river corridor may not be met with existing roads and trails. Access to potential dispersed campsites may be limited. Trailheads may be inadequate for current and future needs.

Conversely, existing roads and trails may be adversely effecting river values. The harm can be direct, the visual effect of roads in near natural settings, or indirect, increased sediment in trout spawning areas due to human and cattle movement on trails.

Recreation

A general trend of increasing recreation in eastern Oregon is expected to continue. In itself, the designation of rivers as part of the Wild and Scenic Rivers System is expected to attract visitors.

Existing facilities may not meet the expectations of new visitors. Other resources and river values -- riparian habitat and scenery -- may be effected.

Addressing this issue requires determining the kind of recreational experience which should be offered in various portions of the corridor.

Minerals

Mining is permitted in scenic rivers by the Wild and Scenic Rivers Act. There are no active mining operations in the corridor but future mining could effect scenic, recreation, water quality, and fish habitat values.

Addressing this issue involves developing standards and guidelines that mitigate the effect of mining operations on scenic river values.

Watershed and Water Quality

Current and future activities can affect water quality and quantity, bank and channel stability, and aquatic and riparian habitats along streams and around wetlands. Key water quality parameters include bacteriological contaminant levels, turbidity, and water temperature.

Activities can also impact soils, indirectly reducing water quality and quantity. The removal of effective ground cover, soil compaction, and soil displacement can all be involved.

There are three existing irrigation systems, including two of their diversions, in the northern part of North Fork Malheur River corridor. Existing water users could be impacted by scenic river management.

Cultural Resources

Protection of cultural resources is required by law and regulation and is important to people with an interest in history.

Information about cultural resources in the river corridor was gathered during the preparation of this environmental assessment. It was used to assess the significance of this resource as an outstandingly remarkable value.

While it was determined that cultural resources in the river corridor are not significant enough to warrant outstandingly remarkable designation, an old military and an old trade road are within the corridor.

Social and Economic Considerations

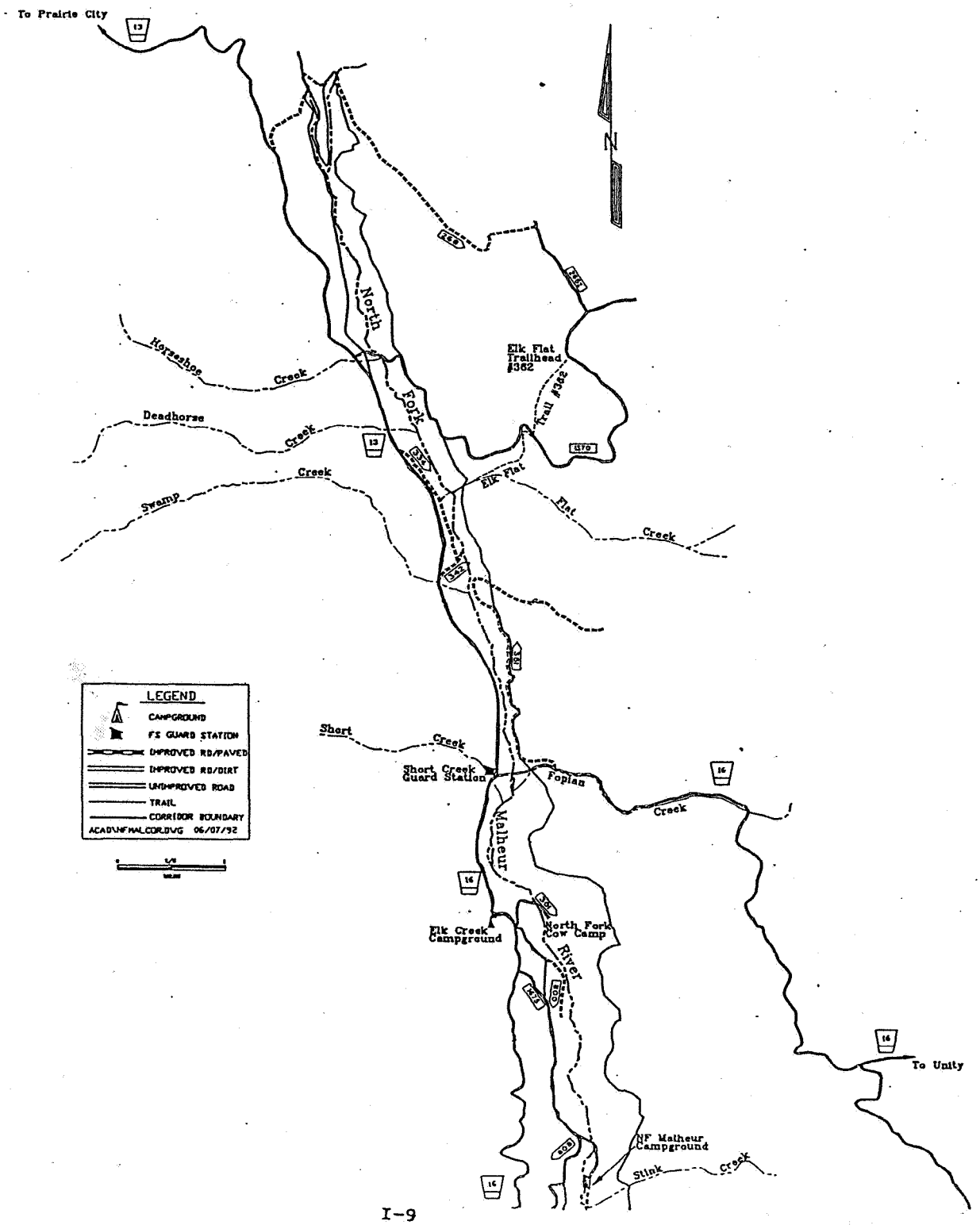
The amount of timber produced within the scenic river corridor and possible restrictions on livestock grazing are major issues.

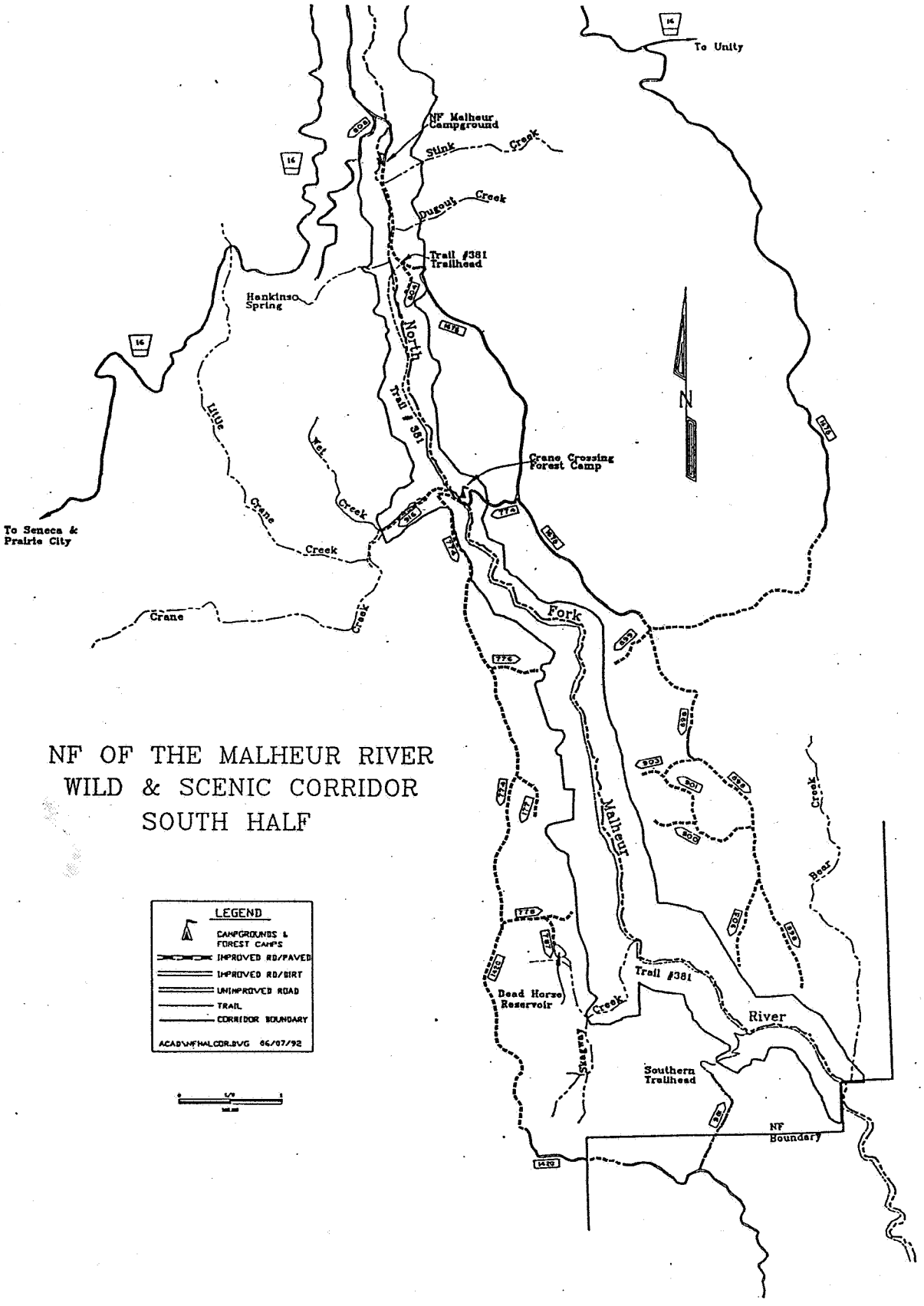
Although the volume of potential timber harvest is relatively small, any reduction in harvest is controversial locally. The impacts on local economies, funding for schools, and income to Grant and Baker Counties are all involved.

There is also a concern that changes in livestock management may place the economic viability of ranching operations in jeopardy.

Management which would change the availability or nature of recreation in the scenic corridor is an important social issue.

NF OF THE MALHEUR RIVER
WILD & SCENIC CORRIDOR
NORTH HALF




To Unity
NF Malheur Campground
Stink Creek
Dugout Creek
Trail #381 Trailhead
Henkinso Spring
North Fork
Little Crane Creek
Trail # 381
Crane Crossing Forest Camp
To Seneca & Prairie City
Crane Creek
Crane Creek
Fork
Malheur River
Bear Creek
Dead Horse Reservoir
Trail #381
Creek
Southern Trailhead
NF Boundary
N
NF OF THE MALHEUR RIVER
WILD & SCENIC CORRIDOR
SOUTH HALF
LEGEND
CAMPGROUNDS & FOREST CAMPS
IMPROVED RD/PAVED
IMPROVED RD/DIRT
UNIMPROVED ROAD
TRAIL
CORRIDOR BOUNDARY
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Chapter Two

Affected Environment

To evaluate the implications of proposed management alternatives, described in Chapter 3, an understanding of existing conditions is required. A description of the North Fork Malheur Scenic River corridor is given below.

Geology

The North Fork Malheur Scenic River follows the North Malheur Fault from its headwaters to a point about 1.5 miles south of the Short Creek Guard Station.

South of this point, the North Malheur Fault diverges into a series of roughly parallel faults that trend south-southeast. In this section, the river channel continues along the edges of, or through, the interior of a downthrown block (graben) area that lies between two of these faults.

The source of the lavas that form the Strawberry Volcanics Formation include several shield volcanos and numerous smaller vents in the vicinity of Strawberry and Lookout Mountains. The most intense period of volcanic activity occurred between 12 and 15 million years ago. The area, during this period, was undergoing a tectonic extension, forces which literally pulled the surface apart in east and west directions.

Glacial sculpting of the river valley is evident in the northern part. The river channel passes through areas where glacial moraines and colluvium have deposited on the bedrock materials.

A characteristic feature is a series of essentially horizontal lava flows layered on top of one another. Individual layers rarely exceed 40 feet in total thickness and are commonly separated by thin interflow layers composed of scorched soils, volcanic ash, and rock materials incorporated into the base of the fluid lavas.

The rock in these flows ranges from fine to medium-grained basalt and basaltic andesite. It is usually pale-grey streaked or mottled with lighter grey, green, and reddish brown mineral concentrations.

Some of the flows have a massive columnar structure, with columns of up to 8 feet in diameter. These powerfully molded columns are formed from cooling/shrinkage cracks that developed perpendicular to the surface of the flowing basalt.

Other flows developed a distinctive platy texture, with individual plates ranging from one-half to several inches in thickness. The jointing of plates is thought to have at least partially occurred from flow limitations derived from shear failures during movement. Many outcrops exhibit some of both textures, are plated near the top of the flow and become more massive with increasing depth.

These volcanic materials are best exposed where the river has carved the deepest canyon, so the best exposures are along the steep canyon walls south of the Crane Creek Ford. Total distance from the top of the canyon to the river in this section ranges between 250 and 750 feet.

Prominent features in this portion of the canyon include rock outcrops, talus slopes, and areas above and adjacent to the river channel that have relatively flat slopes resulting from mass wasting or slope failures.

In some areas the outcrops form vertical or near vertical cliffs as high as 50 feet. In others, differential weathering has created pinnacles and windows or small arches through portions of the outcrop. Hoodoos, cliffs, and overhangs all contribute to the dramatic character of this section.

Along the downslope margin of many outcrops, some of the columns or other large blocks of rock have cracked and tilted or slipped away from the main outcrop. Massive talus slopes exist at the base of or below most of the outcrops. Some of the larger talus slopes extend for several hundred feet or more down the slope, and the base of many of them extends into the river bed. Some of the smaller talus chutes extend from the top of the canyon walls all the way to the river bed.

Slides produced by the undercutting action of the river range from small to greater than 40 acres. One of the largest relic debris deposits is just below Skagway Creek, where the block has since eroded into a rounded knob.

In some areas slide deposits were massive enough to have buried the old river channel, forcing the river over against the side of the opposite canyon wall. River channel direction changes abruptly, often at nearly a right angle.

Scenery

The North Fork Malheur River corridor provides a natural appearing setting. Though there is some evidence of timber harvest, road construction, fences, recreation developments, and other human intrusion in parts of the corridor, most of the corridor is undisturbed.

Upper Portion

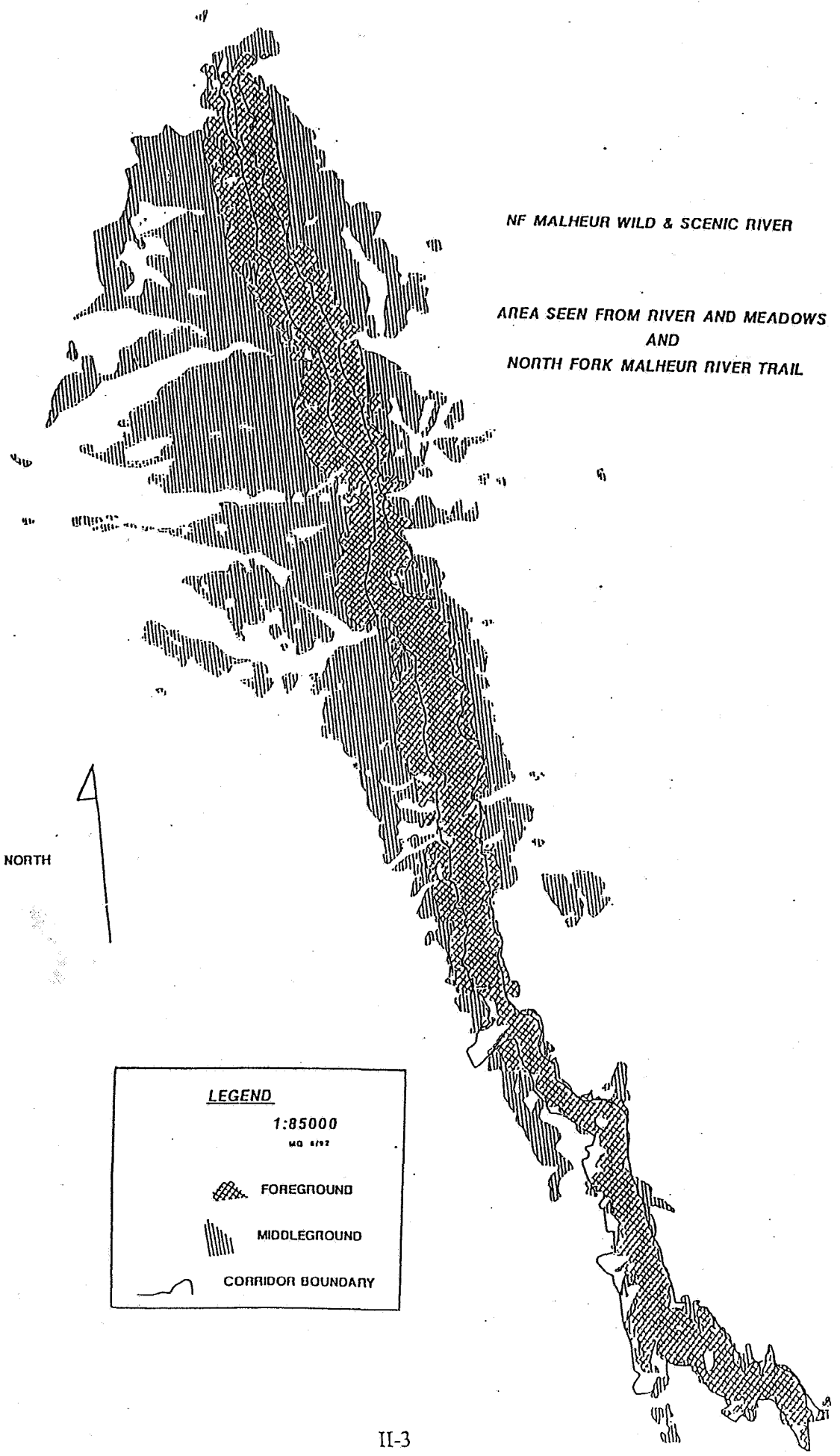
The North Fork Malheur corridor begins at the head of a large, relatively flat, horseshoe-shaped valley paralleled by hills and ridges. A past fire, the Big Cow Burn in 1939, created an almost continuous blanket of even aged lodgepole pine at the upper end of the valley.

Elsewhere, vegetation consists primarily of green, forested areas of lodgepole pine along the west side, dark green mixed conifers along the east side, and open green, grassy meadows. Seasonally there are brilliant displays of fragile, seasonal wildflowers in these meadows.

Development includes jeep trails, a cow camp, paved roads, a fire-fighting station, and a bridge at Elk Creek.

Middle Portion

From Fopian Creek to the North Fork Campground the surrounding vegetation is diverse but dominated by stands of large-diameter old growth ponderosa pine trees. The orange bark contrasts with the background vegetation and reflects in the calmer, slower water. There is more diversity in the river here, riffles, quiet water, and meandering stretches alternate. Outcrops, boulders, and rock covered slopes add variety to land adjacent to the stream. Meadows, dispersed camps, and roads that cross the river make good viewpoints.


NF MALHEUR WILD & SCENIC RIVER
AREA SEEN FROM RIVER AND MEADOWS
AND
NORTH FORK MALHEUR RIVER TRAIL
NORTH
LEGEND
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FOREGROUND
MIDDLEGROUND
CORRIDOR BOUNDARY

P 0377

Lower Portion

From North Fork Campground to the Forest Boundary, the river meanders through flat, green meadows. The surrounding forested green hillsides provide the backdrop.

Walls of the canyon below Crane Creek steepen rapidly, becoming narrower and deeper. The spectacular rock formations along this reach are described above under Geology. Mossy growths and sharp angular edges provide contrast with the more rapidly flowing water, tall trees and grassy slopes.

The river, dark green to clear in color, bubbles through a series of riffles with few pools, boulders, or logs to slow its course. Good vantage points for river viewing include the North Fork Malheur River Trail, which parallels most of this river segment, and roads that cross the river near the North Fork Campground and at Crane Crossing. There are also good views from meadows along the river.

Visual analysis of the area seen from the North Fork Malheur River and adjacent meadows indicates that approximately 85 percent of the river corridor is in visual foreground, 5 percent in the middleground and 10 percent is unseen (see map, Page II-3) . Land which can be seen outside the river corridor is assigned to Management Area 14, Visual Corridor. It will be managed to protect visual values.

Fishery

The North Fork Malheur Scenic River is valuable habitat for sensitive fish species and an important recreational fishing area. The fishery was determined to be an outstandingly remarkable river value.

The river once supported runs of chinook salmon, Oncorhychus tshawytscha, and steelhead, O. myskiss, but construction of the Agency Valley Dam on the Beulah Reservoir blocked upstream migration by these anadromous fish in 1935.

Sensitive Species

The presence of bull trout, Salvelinus confluentus, is a reflection of the high quality of habitat in the river. The river once had the reputation as a producer of large bull trout, commonly greater than 20 inches in length. The bull trout population in the North Fork Malheur River has declined from this historic level. The Agency Dam isolated bull trout in the North Fork Malheur from other populations of the species and habitat within the river has also been affected.

Despite this decline, the North Fork Malheur and its tributaries provide the second largest contiguous suitable bull trout habitat in the region. Only the North Fork of the John Day River is larger.

Redband trout, Oncorhynchus sp., and bull trout are listed as Category 2 species under the Threatened and Endangered Species Act, which means additional information is needed to determine if listing is appropriate. They are also on the Regional Forester's Sensitive Species List. In 1990, because of the precarious condition of bull trout, the Southeast Region of the Oregon Department of Fish and Wildlife placed an emergency closure of the taking of this species. The North Fork Malheur River is in this region.

A major plus for bull trout in the North Fork Malheur is the absence of introduced brook trout, Salvelinus frontinalis. Interbreeding, an important factor in the decline of other bull trout populations, is not a problem in this river.

Habitat Conditions

Tributary streams and several large springs in the upper reaches of the river corridor provide cool, clean water to the system; water quality is very high.

Quantitative studies of insect populations have not been performed but observed species variety and abundance suggest high water quality and an ample food supply for resident fisheries. Five minnows, (cyprinids) and the mottled sculpin, Cottus bairdi, were found and are important in the diet of bull trout. In addition, the river supports populations of bridgelip suckers, Catostomus columbianus, and largescale suckers, C. macrocheilus.

While fish habitat is diverse and of high quality, particularly in the upper reaches, the Agency Dam on the and agricultural development below the Forest boundary have reduced the overall vigor of fish populations in the river.

Within the corridor, cattle grazing and, to a lesser extent, recreation have damaged the condition of streambanks and streambank vegetation. Bank stability was generally rated at about 80 percent in a 1989 survey, which is considered satisfactory streamback stability rating. It was only 50 percent, however, adjacent to the Crane Creek Forest Camp, which is unsatisfactory.

The condition of streambank vegetation is worse, especially that of shrubs. Except for the canyon reach near the Forest boundary and reaches above Forest Road 1370, shrub cover ratings range from 10 to 30 percent, which is an unsatisfactory riparian cover rating. Shrub cover potential for the habitat types along the river ranges from 40 to 80 percent.

Riparian and range forage conditions are based upon different criteria. Areas rated as fair or good in terms of range condition, therefore, may be in unsatisfactory riparian condition.

In the lower reaches of the river, higher water temperatures limit habitat for cold water species, particularly the bull trout, during low flow in the summer. An increase in streamside vegetation could extend the reach of cooler water.

Rearing pools produced by large woody debris are scarce in the middle and lower reaches of the North Fork Malheur, perhaps because of the 1964 flood. Counts of large woody debris (LWD) from the 1989 stream survey averaged 130 pieces per mile above Road 1370, but only 72 pieces per mile between this road and Crane Creek, and only 23 pieces per mile between Crane Creek and the Forest Boundary. This creates an opportunity for significant habitat improvement within the middle and lower reaches of the river.

The combination of cooler water provided by additional shading and deeper pools created by large woody material could extend the distribution of bull trout throughout the scenic corridor.

Two irrigation diversions reduce water quality and quantity and trap fish in ditches. A 1991 survey disclosed redband and bull trout mortality in irrigation ditches. A decision about installing screens or retiring the water rights will be made in the future after further analysis.

Angling

Fishing pressure on North Fork Malheur fish populations has increased in recent years but is still significantly less than on other rivers in the area.

Native redband trout, whitefish, Prosopium williamsoni, and stocked rainbow trout, Oncorhynchus myskiss, are commonly caught by anglers, some of whom travel a considerable distance to fish the stream. A large portion of fish caught around the North Fork campground are stocked rainbow. Trophy size redband trout (16

to 18 inches) are caught in the less accessible canyon country near the Forest boundary.

Stocking with rainbow trout, which began in the mid-1950s, has been reduced in recent years to diminish conflict with redband and bull trout. Currently only about 1,000 fish are stocked near the high recreation use area near the North Fork Campground annually. It is the current position of the Oregon Department of Fish and Wildlife (ODF&W) that the risk of interbreeding stocked fish with wild redband trout is minimal at the current stocking level.

Wildlife Habitat

While wildlife populations are a very important resource within the North Fork Malheur Scenic River corridor, they are not unique in terms of what exists in adjacent forestland. The wildlife habitat is unique, however, providing a high level of biological diversity.

The variety of habitat types and the contiguous nature and length of these habitats far exceed other river corridors in this geographical area. In the resource assessment completed in January 1992, it was determined that this uncommon habitat meets the criteria and qualifies as an outstandingly remarkable value.

The distinctive and dynamic habitat types are interactive, providing contiguous habitat conditions both horizontally and vertically. All aspects of the river corridor interact together in this excellent connectivity corridor, which is rich in species diversity.

The corridor facilitates immigration and emigration, promoting genetic dispersal and enabling the area to function as a complete ecosystem. The interface between the distinctive habitat types is used as a travel/migration corridor for elk and deer from summer to winter range. The corridor is also used for nesting, hunting, and migration by raptor species.

Compared with adjacent managed lands, the corridor is outstanding for the high quality of habitat and large number of wildlife species using it. Hardwood trees and an understory component of shrubs in riparian areas provide habitat for additional species.

Headwaters to Crane Crossing

The upper section of this corridor is occupied by three upland habitat types and riparian areas adjacent to the river. On the east side of the river (west aspect), dense mixed conifer areas are dominated by Douglas fir (pseudotsuga menziesii) and pinegrass (Calamagrostis rubesscens). Uplands on the west side of the river are dominated by grand fir (Abies grandis) and pinegrass. On both sides of the river, grouse huckleberry (Vaccinium scoparium) is the dominant shrub.

Meadows vary between 50 and 400 feet in length and width, larger than the meadowland in the lower reaches. They are lush with graminoids (grasses and grass-like plants) and shrubs. Lodgepole pine occurs in clumps along the edges of the meadows. Springs, seeps, and boggy areas scattered throughout the meadows add to the visual beauty of the area and provide habitat for shrews, mice, voles and other species.

Lodgepole pine and riparian hardwood trees and shrubs line the river and side channels. This includes willow (Salix spp.), alder (Alnus spp.), and occasional quaking aspen (Populus tremuloides).

About 400 acres of the Big Cow Burn, which occurred in 1939, is within the river corridor. It is dominated by lodgepole pine which regenerated after the fire.

Crane Crossing to Forest Boundary

A shrub/grass-forb ecotype on the east side of the river is broken by many talus rock slides, rock outcrops, small caves, and an occasional

large ponderosa pine, Douglas fir, or western juniper.

Shrubs include chokecherry (Prunus virginiana), curlleaf mountain mahogany (Cercocarpus ledifolius), sagebrush (Artemesia spp.), and wax current (Ribes cerum).

On the west side, mixed conifer -- Douglas fir, ponderosa pine, and western juniper -- are the primary larger trees. The shrub/grass species are dominated by birchleaf spirea (Spiraea betulifolia), serviceberry (Amelanchier alnifolia) in conjunction with rocky areas, and elk sedge (Carex geyeri). Occasional talus slides and small rock outcrops create a mosaic of habitat types.

Approximately 875 acres of old growth was identified in the scenic river corridor when the Forest Plan was being prepared. When added to other stands exhibiting old-growth characteristics in the corridor, an estimated 3,400 acres of this habitat is available for the pileated woodpecker (Dryocopus pileatus) and the pine marten (Martes americana). In addition to providing a refuge for these old-growth associated species, this habitat accommodates many other species, both those associated with old growth and others.

The riparian zone vegetation in this portion of the corridor is a mixture of alder, willow, red osier dogwood (Cornus stolonifera), currants (Ribes spp.), and grasses. In some areas the vegetation is abundant: the shrubs have a hedge-like appearance. This habitat provides a connection between the river and uplands and, in addition to many small mammals, is occupied by numerous passerine birds, including neo-tropical migrants (see Glossary).

Animals

Numerous regionally important wildlife species such as rocky mountain elk (Cervus elaphus nelsoni), mule deer (Odocoileus hemionus), black bear (Ursus americanus), pine marten, pileated woodpecker, and osprey (Pandion haliaetus) occupy the corridor. It is also of major importance as a migration route for these and other species.

Indicator Species

Thirteen species were identified as management indicator species in the Forest Plan. The twelve listed below have been observed in the scenic river corridor. Indicator species are representatives of groups of wildlife species with similar requirements and are used to monitor the overall effect of management practices on wildlife.

Rocky mountain elk require an appropriate mixture of thermal cover, foraging areas, and protection from harassment from human activity, particularly motorized vehicles. The corridor easily meets these requirements and, in addition, provides an excellent migration and movement corridor. It is particularly important because of the degree to which timber harvest and road construction on adjacent lands have reduced or eliminated these habitat characteristics.

Pine marten are generally associated with mature coniferous forest communities in dense stands with abundant downed woody material. The downed material provides habitat for prey animals and escape cover for the pine marten.

Marten tend to use riparian areas as a portion of their home range, using them for forage and travel. Talus and other rocky areas provide cover and denning areas for marten. The corridor includes all of these elements and is excellent pine marten habitat. The corridor provides better marten habitat than adjacent lands because of the stands of mature mixed conifers and plentiful rocky and talus area.

Pileated woodpeckers also use mature and old-growth timber. Mature coniferous forests with two or more canopy layers are preferred. Nests are typically in large dead ponderosa pine or western larch (Larix occidentalis) trees. Stand-

ing and downed dead trees provide a variety of insects, carpenter ants, mountain pine beetles, and wood-boring beetle larvae.

Because of the amount of mature and old-growth timber along its considerable length, 22 miles, the corridor provides excellent foraging and nesting habitat for pileated woodpeckers. Connectivity between horizontal and vertical habitats, available throughout the corridor, is in limited supply outside the corridor.

The **northern three-toed woodpecker** (Picoides tridactylus) is an indicator species for old-growth lodgepole pine. It feeds on wood-boring insects.

Lodgepole habitat is concentrated on the west side of the river in the southern portion of the corridor and in the Big Cow Burn area in the northern portion.

White-headed woodpeckers (Picoides albolarvatus) are associated with old growth ponderosa pine communities. They forage for insects in the deeply fissured bark of mature ponderosa pine and, in the winter, feed almost exclusively on ponderosa pine seeds (Jackman and Scott 1975).

This species nests in standing dead ponderosa pine trees (Bull, E. 1981). Habitat exists along the west side of the river in the southern portion of the corridor and in the old growth portion of both sections.

The **Lewis' woodpecker** (Melanerpes lewis) is found in open ponderosa pine forests with bushy undergrowth and in lower elevation riparian woodlands. It is frequently observed throughout the river corridor, using the riparian zone.

Yellow-bellied sapsuckers (Sphyrapicus varius) are closely associated with aspen or lowland forest (Bull, E. 1981). Foraging and nesting activities are restricted to riparian and meadow areas but the bird is observed throughout the corridor.

Red-breasted sapsuckers (Sphyrapicus ruber) forage and nest among willows, alders and aspen (Jackman and Scott 1975) and are associated with riparian areas. It has not been frequently observed in the corridor but potential habitat is available.

Williamson's sapsuckers (Sphyrapicus thyroideus) prefer grand fir communities with two and three canopy layers and less than 75 percent canopy closure. They nest in large dimension live or recently dead ponderosa pine or larch and, occasionally, in Douglas-fir or grand fir (Bull, E. 1981). There is potential habitat on the west side of the river in both sections of the corridor.

Downy woodpeckers (Picoides pubescens) around found in coniferous forests with large insect populations. They nest in aspen and willows and this habitat is available in the riparian areas and meadows in the northern section. With insect populations at elevated levels on the Forest, this species may flourish.

Hairy woodpeckers (Picoides villosus) and **northern flickers** (Colaptes auratus) prefer open habitat with tree trunks, stumps, exposed roots, snags and downed logs for forage (Bull, E. 1981). These conditions and the two species are found throughout the corridor.

Black-backed woodpeckers (Picoides arcticus) are found in all forest types but prefer ponderosa pine. The bulk of its diet is provided by woodboring beetles (Bull, E. 1981). Habitat for this species is best on the west side of the southern portion of the corridor.

Listed Species

These are species listed as endangered or threatened under the 1973 Endangered Species Act.

The **Northern Bald Eagle** (Haliaeetus leucocephalus) is listed as threatened by the U.S. Fish and Wildlife Service. It requires rivers or large bodies of water for both summer and winter habitat. In the winter, water bodies must be ice free.

There is potential summer and nesting habitat for bald eagles throughout the river corridor but there have been no confirmed sightings. The length of the corridor and diversity of usable habitats provides potential eagle habitat.

Eagles usually nest in tall trees but occasionally use cliffs and rock pinnacles, all within easy flight to and view of water. Winter roosting sites are important habitat and large, mature trees generally isolated from human activity are used. Trees with open, horizontal branches, suitable for perching, are favored.

Bald eagles feed primarily on fish but will also prey on waterfowl, carrion, and small mammals (Grubb, T.G., Nagiller, S.J., and others 1989).

The **American peregrine falcon** (Falco yeregrins anatum), listed as endangered by the Fish and Wildlife Service, requires nesting, perching, roosting and foraging areas. Falcons nesting almost exclusively on cliffs, usually sheer cliffs 150 feet or more in height near water. The cliff usually has a small cave or overhang large enough for three or four full-grown nestlings (the Pacific Coast American Peregrine Falcon Recovery Team, 1982)

Foraging areas include wooded areas, marshes, open grasslands and bodies of water. The wooded areas near water attract a wide variety of avifauna and water reduces the escapement of prey, primarily waterfowl and other bird species.

Although there have been no confirmed sightings there is potential habitat for peregrine falcon throughout most of the river corridor. The best habitat is on the east side of the river in the southern section. The close proximity of large cliffs, snags, wooded areas, and the large size of the corridor makes it a potential future location for peregrine falcons introductions.

Sensitive Species

A Sensitive Species List for Oregon and Washington has been compiled by the Regional Forester.

The **California bighorn** (Ovis canidensis californiana) requires mountains, canyons or a combination of the two. Areas with low shrub and grass height provide excellent to good bighorn habitat.

Grasses and forbs are the primary staple for bighorn year-around. Browse consumption increases during the fall and is often important in the winter.

Potential habitat for bighorn in the river corridor is on the east side of the river in the southern section. Low road density and a low frequency of human disturbance contributes to the quality of the habitat.

California wolverine (Gulo gulo luteus) can be found in mature or younger timber around cliffs, slides, timber blowdown, basins, meadows, and other openings. They move to higher, cooler elevations near the alpine zone in the summer.

Wolverines feed primarily on rodents and big game carrion. They also eat berries, insects, fish, and birds.

There have been no confirmed sightings of wolverine but there is potential habitat throughout the river corridor. Foraging opportunities, solitude, and the interaction of habitat types required by wolverines are available through much of the 23 mile length of the corridor.

Preferred habitat for the **Preble's shrew** (Sorex preblei) is grass/sedge meadows, quaking aspen, and hardwood dominated riparian zones (Larrison and Johnson 1981). This habitat is available in the riparian areas and meadows of both portions of the corridor but can be degraded by overgrazing by domestic livestock.

The **Pacific western big-eared bat** (Plecotus townsendii townsendii) occupies diverse habitats from arid juniper/pine forests to high elevation mixed conifer forests.

In winter it commonly roosts in caves or abandoned mines from October until mid-spring. Habitat is available throughout the river corridor, particularly in the many caves and crevices close to timber and water in the southern portion of the scenic river.

Greater sandhill crane (Grus canadensis tabida) inhabit wet meadows and marshes associated with riparian zones. Nesting commonly occurs in marshes, stringer meadows, beaver (Caster canadensis) pounds, and riparian areas and nests are made from residual vegetation from the previous growing season (Littlefield and Ryder 1968).

Riparian areas and meadows in both portions of the river corridor contain potential habitat for sandhill cranes. Meadows in the northern portion would provide exceptional habitat for this species although the value of it and other potential sites could be reduced by overgrazing by livestock.

Western sage grouse (Centrocerus utophasianus) use sagebrush steppe or juniper steppe rangelands exclusively. Sagebrush is used both for food and cover. Broods are usually associated with meadows or riparian zones.

Connectivity between riparian zones, meadows, and uplands is required in the spring. Habitat is primarily on the east side of the river and, occasionally, high in the open country on the west side of the southern part of the corridor.

Featured Species

The Forest Plan compiles a list of Featured Species of which there is high public interest or demand.

The **pronghorn antelope** (Antilocapra americana) prefers large, open, low rolling rangelands with no major physical barriers. This habitat is associated with sagebrush/grassland steppe plant communities. The pronghorn does not occupy the river corridor but is found on adjacent lands and occasionally uses the corridor for migration.

The preferred habitat of **osprey** (Pandion haliaetus) is almost always associated with water; rivers, lakes, and reservoirs. Osprey preys almost exclusively on fish.

There are historical osprey nests in and adjacent to the river corridor and there is great potential for increased use by the species. The abundance of large standing dead trees along 22 miles of water flowing freely through meadows and deep canyons has produced some of the best osprey habitat in the immediate geographical area.

Other Species

The **black bear** seeks remote forests with dense understories or a mixture of seral stages. Bears will utilize caves, crevices and overhanging areas to rest or winter. The corridor enables bears to move from forested areas to more open country during seasonal migrations. They are found throughout the corridor; the southern section provides best viewing opportunities.

Preferred habitat for the **prairie falcon** (Falcon mexicanus) is open mountain regions, short grass prairies, and, occasionally, wooded areas. Roosting and nesting areas tend to be cliffs and ledges 30 to 40 feet in height facing open areas. Prairie falcons prey on birds, small mammals, insects, and lizards and have been ob-

served in canyon land on the east side of the southern section of the corridor.

Watershed

The entire North Fork drainage rests on bedrock consisting predominantly of andesites and basalts of the Strawberry Volcanic Series. It is among the most erosion resistant material on the Forest.

Because of this, landforms in the basin are uniformly stable and are not prone to mass failures which generate large amounts of material into the stream system. (Slides described in the geology section occurred over very long periods of time.)

Annual precipitation decreases from approximately 40 inches per year in the upper end of the drainage to as little as 15 inches where the river leaves the National Forest.

Most of the precipitation occurs as snowfall which accumulates in the area of the headwaters from November through April. Elevations range from 8,052 feet at the summit of Lookout Mountain to 3,960 at the forest boundary.

East flowing streams such as Elk Creek, Swamp Creek, and others originating in high glacial basins contribute abundant flows of cool water to the North Fork Malheur River. Broad, gentle basins with deep glacial soils in the upper reaches and numerous winter storms result in the accumulation and retention of snow.

Shallower soils and less snow accumulation on the east side of the drainage prevent these streams from contributing as significantly to late summer flows in the North Fork.

The character of the North Fork basin changes dramatically below Elk Creek. Crane and Bear Creeks collect water outside the river canyon but most tributaries in the lower portion are confined to the canyon and contribute very little flow except in the spring.

Soils are generally deeper in the northern portion of the North Fork drainage. Low annual precipitation and shallower soils in the south produce some areas incapable of supporting 50 percent ground cover. These areas are potential sources of sediment but comprise only 10 percent of the total basin. Rock armoring of slopes in many of these areas reduce the risk of sedimentation.

Because less than 5 percent of soils in the entire basin are considered highly erosive, water turbidity is generally low.

For much of its length, the North Fork gradient ranges from 1 to 2 percent. Above 5,400 feet the gradient gradually steepens to more than 7 percent. The river channel is relative straight with only occasional meandering and braiding. Channel bottoms are well armored by small boulders and cobble sized materials derived from bedrock. Channel widths increase from 3 to 5 feet in the headwaters to 40 to 50 feet in lower reaches.

Large areas of riparian vegetation extend from the river to its source at 6,100 feet elevation. Below 5,600 feet a wider floodplain develops and occupies the bottom of a large glacial valley. Soils here are ashy loams more than 10 feet deep which store large quantities of water. The adjacent sloping wetlands capture spring and early summer runoff and release it to the river during late summer low flow periods.

Below Road 1675 the basin and the floodplain narrow into a confining canyon. Occasional benches occur but the canyon remains narrow and shallow soils reduce the amount of wetland along the river to the areas around the confluence of major tributaries.

Water Quality and Quantity

As noted above, favorable landforms and soil types have resulted in relatively low levels of sediment transport and turbidity in the North Fork Malheur River.

There is little actual flow data for the scenic river portion of the North Fork but a United States Geological Survey gauging station is located above Beulah Reservoir. This is well below the designated portion of the river and below of confluence of several tributaries. The data, however, provide information about yearly flow and show the impact of the recent drought.

Largest Flood:
December 23, 1964 - 3,970 cubic feet per second.

Lowest Flow:
December 13, 1967 - 8. 5 cubic feet per second.

Cool water from tributaries is warmed after it enters the mostly unshaded, north south flowing river, which has a dark rock substrate. Summer temperatures in tributaries range between 45 to 60 degrees, those in the main stem move into the upper 60s in hot weather.

A large portion of the glacial headwaters of the North Fork burned in the Big Cow Fire of 1939. It was naturally regenerated by dense stands of lodge pole pine, trees which are now between 20 and 40 feet tall. Large areas were contour terraced to provide ponderosa pine planting sites. (Lodgepole regeneration was primarily natural.) These terraces reduced sediment transport from the denuded slopes. Hydrologically, recovery from the Big Cow Fire is complete.

The following mean daily flow values are expressed in cubic feet per second.

	Avg. 1936-88	Avg. 1987-90 (Drought)
October	53.1	46.7
November	69	48.3
January	77.3	48.8
February	123.2	51.7
March	219.9	166.6
April	380.4	204.8
May	322.5	156.4
June	170.5	70.2
July	67.1	40
August	46.1	37.5
September	47.3	38.7
Annual	136	81

The Glacier Fire in 1989 and the Sheep Mountain Fire in 1990 also affected the river corridor. The former burned slightly more than 4,000 acres, mostly in the Swamp Creek and Deadhorse Creek tributaries. The latter burned 8,500 acres in the Sheep Creek, Elk Creek, and Little Crane Creek tributaries.

Large amounts of ash entered streams following these events causing temporary increases in turbidity and acidity. Recurrent ash flushes are not anticipated as post fire erosion and sediment control measures become effective.

Altered timing and amount of flow because of the effect of fire on snowpack accumulation and melting will be a more enduring effect, as will increases in water temperature because of the loss of shading.

Temperature increases in North Fork tributaries and the North Fork itself were estimated during fire recovery efforts.

Little Crane Creek	1.3 degrees F
Crane Creek	.5 degrees F
Elk Creek	1.8 degrees F
Sheep Creek	2.3 degrees F
Swamp Creek	2.3 degrees F
Deadhorse Creek	3.0 degrees F
North Fork Malheur River	.9 degrees F

Resprouting and growth of riparian vegetation are expected to return water temperatures to pre-fire levels in approximately 10 years.

Timber harvest and road construction have had only minor effects on water quality along the scenic river corridor except in the Crane and Spring Creek drainages.

Along Crane Creek, the need to harvest fire damaged stands after extensive roading and timber harvest had already occurred resulted in a particularly high level of disturbance. Efforts to mitigate this disturbance were extensive. Where large clearcuts were performed along the south side of Flat Creek, for example, wide buffers of riparian vegetation and standing timber were retained.

In much of the North Fork drainage, grazing is precluded by steep terrain and dense riparian vegetation. Grazing has created water quality problems on the main stem only along portions of the river and tributaries on the relatively flat, open areas in the glacial bottom lands above Road 1675. In the Crane Creek sub-drainage, grazing is heavy in some riparian areas. Where it is inadequately controlled there is point bacterial contamination, sedimentation, and increased turbidity.

Three irrigation diversions along the North Fork drainage were discussed in the fishery section.

Timber

The scenery in northern portion of the North Fork Malheur River is still recovering from the Big Cow Fire of 1939. Approximately 401 acres within the corridor were burned and are now occupied by stands of 50-year-old lodgepole pine.

Few of these stands have been thinned and diameter growth is slow. Crown ratios are generally poor where stand densities are more than 150 square feet of basal area. Many stands are approaching stagnancy.

Dense undergrowth of snowbrush (Ceanothus velutinus) dominates to a height of 6 feet in many stands. Where tree canopy closure has occurred, however, or is close to occurring, snowbrush is disappearing and grouse huckleberry/pinegrass becomes dominant.

Given these conditions, no large diameter trees can be expected to develop without some

thinning. There is small prospect for replacement of snags created by the 1939 fire and, as they fall, the area will become snag deficient.

South of the burn area, stands begin to change from lodgepole to mixed conifer. They reflect the consequences of fire suppression, exhibiting dense understories. Immediately adjacent to the burn area, a lodgepole and white fir understory is common. Engleman spruce occurs in riparian areas.

Further south, the ponderosa pine, Douglas-fir and white fir understory reflects the drier environment. Overstories are dominated by ponderosa pine. A few open ponderosa pine/ mountain mohagany scabs appear on dryer south aspects.

Sites become even drier south of the 1675 Road Bridge. Large diameter ponderosa pine is the primary species in the overstory. Sites around the North Fork Trailhead have ponderosa pine, lodgepole, and Douglas-fir understories. In others, Douglas-fir/ white fir understories are severely damaged by the Western Spruce Budworm. In riparian areas, the Mountain Pine Beetle has afflicted stands of lodgepole pine.

South of Crane Creek, mortality in the Douglas-fir and white fir understory is greater than 80 percent. Adjacent to the Forest boundary, rocky outcrops occur and sites become increasingly dry. Ponderosa pine dominates the overstory and sage and western juniper appear more frequently on south aspects. Douglas-fir and the more productive ponderosa pine associations are found on north and east aspects.

Sensitive Plant Species

Detailed habitat descriptions are given in the Malheur National Forest Sensitive Plant Manual.

There have been no documented sightings of sensitive plants within the scenic river planning area but a pre-field evaluation found potential habitat exists for three sensitive species: Allium brandegei, Allium campanulatum, and Oryzopsis hendersonii. District Total Resource Inventory (TRI) data, aerial photographs, the Oregon Natural Heritage Program sighting records, and District sensitive plant files were consulted in addition to field checks to reach this conclusion.

Allium brandegei occurs on sagebrush/ grassland communities. Allium campanulatum occurs in ponderosa pine forests that typically are situated near scablands. Oryzopsis hendersonii occurs on rigid sage and low sage scablands. Potential habitat for these species could be impacted by activities that would be permitted in every alternative considered in this document.

Fire

Fuel loading in the corridor varies depending on the vegetation type. Generally, fuels are light in ponderosa pine dominated sites, .74 to 3.02 tons per acre in the 0 to 3 inch size class (Fuel Types 1-PP-4 and 2-PP-2). In the mixed conifer sites, fuels vary from 3.3 to 4.8 tons per acre in the 0 to 3 inch size classes (Fuel Types 1-MC-3 and 3-PP & Assoc.-3).

In the future, however, the loadings will increase in the large size fuels, those larger than 3 inches, as insect and diseased affected white fir and Douglas-fir die and fall to the ground. This profile approximates Fuel Type 3-MC-2.

Lodgepole sites generally have a fuel loading of five tons per acre of 0 to 3 inch material (1-LP-1).

Currently the potential for a large catastrophic fire is low. There are patches of heavy concentrations of fuels in the mixed conifer type but they are not continuous.

Material in the larger class sizes will build up in the area. The 3 to 20 inch material does not contribute to the rate of spread but does contribute to the residual effect of the fire once the front has passed. Larger fuels will continue to burn for several hours, possibly days. This can damage soil as the litter, duff layers, and large fuels are consumed. It can also cause girdling of the root crown and cambium of standing trees.

Unless the dead and dying fir is treated with prescribed fire or other hazard reducing measure during the next decade, however, the threat of destructive wildfire may increase.

Range

There are portions of four cattle and horse grazing allotments within the scenic river corridor.

Spring Creek Allotment

The permitted use is 600 pairs from June 10 to October 15.

There are portions of three units in this allotment, the North River, South River, and Bucktrough Units, in the river corridor. The North and South River Units are fenced into 1,239 acres of riparian pasture which constitutes 19 percent of the river corridor.

One hundred fifty pair grazed the North Unit for 15 days and the South Unit for 30 days in 1991. Utilization in the northern portion of the corridor was determined to be 60 percent in upland benches adjacent to the river, 15 percent above the Forest Plan standard.

The Bucktrough Unit has 2,208 acres within the river corridor (31 percent of the corridor). Utilization was measured at 70 percent in small, isolated areas along the river. The Forest Plan standard for satisfactory condition in riparian areas is 45 percent. (See Glossary for definition of Range Conditions.) Excessive use usually occurs when cattle go to the river for water and are not moved.

This unit, located at the southern end of the corridor, has no fence separating the river from the uplands. It is usually grazed early in the season and is used every other year.

Condition

The range condition in these units is considered generally fair to good. Fifteen percent of the land in the North and South River Units and 19 percent of the Bucktrough Unit are not suitable for grazing because of steep slopes, rock talus, or dense forest canopy.

Data collection during the 1991 grazing season and data from previous grazing seasons were used to establish the grazing capacity of these and other units in the scenic river corridor.

It was determined that the North and South River Units can support approximately 204 animal unit months (AUMS) annually and the portion of the Bucktrough Unit adjacent to the river 48 AUMS. An estimated 70 AUMS are supported by land within the river corridor in this allotment.

North Fork Allotment

There are 1,384 acres of this allotment within the river corridor (20 percent of the river corridor). Term grazing permit use is for 450 pair from June 18 to October 17. For the past three years, permitted use has been approximately 30 days within the river corridor.

This allotment is also divided into North and South Units with fencing separating them from upland from upland pastures. Since 1989 they have been used in conjunction with each other. They are grazed last in the permittee's rotation before livestock are moved off the Forest.

The North Unit is directly south of the Spring Creek Allotment around the confluence of Fopian Creek and the North Fork Malheur. Utilization exceeded Forest Plan standards in 1989 and 1990 but generally met the standards in 1991. Fifty to 60 percent utilization occurred at isolated sites on dry benches adjacent to riparian zones.

Condition

The range condition in these units is good with a stable trend. Some riparian shrubs (Alder) have been browsed and are less vigorous as a result.

The two units have a combined capacity of approximately 204 AUMS. Approximately 36 AUMS are accounted for within the river corridor.

Flag Prairie Allotment

The River Unit in this allotment contains 1,569 acres within the river corridor (22 percent of its total acreage). Term grazing permit use is 617 pair from June 1 to October 15.

Utilization has historically exceeded the desirable level in the river corridor and is usually heaviest (60 to 80 percent) at and around Crane Crossing, a flat portion of the floodplain where cattle congregate.

Cattle have in the past been moved through the River Unit, a maximum stay of two nights, on the way to the Mountain Unit. They are not permitted back into this unit until after Labor Day. This keeps conflict with recreationists at a minimum, but the North Fork River Trail has showed signs of damage in the past.

Topography in and adjacent to the South Unit is steep and it is generally not considered suitable for livestock grazing. If used at all (once in the past two years) it is grazed first in the rotation.

Condition

The River Unit is in fair range condition except for the area around Crane Crossing, which is classified as poor. The trend is stable. This is the only ripairian area where big sagebrush (Artemesia tridentata) has encroached in the floodplain, probably because of a lowering of the water table related to grazing. Big sagebrush is thought to increase in areas where grazing in excess of Forest Plan standards occurs.

The unit provides approximately 447 AUMS, close to what the range analysis has shown to be allowable. Approximately 54 of these AUMS are thought to be supported by forage within the river corridor.

Ott Allotment

There are 613 acres of this allotment in this portion of the corridor (9 percent of the total) with 80 percent of this land classified as suitable for grazing. Capacity was determined to be approximately 186 AUMS, of which 134 are thought to be provided by land in the river corridor.

The Rattlesnake Unit in this allotment is south of Crane Crossing and north of Spring Creek Allotment. Here the river corridor is not fenced apart from the uplands.

Utilization was measured at between 60 to 80 percent in small meadows south of the drift fence below Crane Crossing. Downstream, as the canyon narrows and topography becomes steeper, utilization meets Forest Plan standards.

Grazing utilization standards are sometimes exceeded between June and August when cattle graze the small meadows while using the river as a water source.

Cattle using the trail along the river sometimes interfere with the recreational experience of hikers and mountain bikers.

Condition

The general range condition of vegetation in this unit is classified as good with a stable trend. Upland water sources are lacking on the canyon rim.

Cultural Resources

Prior to Wild and Scenic River planning on the North Fork Malheur River, ten sites eligible for inclusion on the National Register of Historic Places were known to exist in the scenic river corridor. The eligibility of two additional historic sites had not been established.

In October and November of 1991, 12 additional sites were found during a field survey of the area. Ten are considered significant. Two other significant cultural resource properties are within a half mile of the scenic river corridor boundary.

Prior to the recent field survey, the potential for locating cultural sites in most of the planning area was considered moderate. Approximately 40 percent of the corridor received visual reconnaissance and former surveys and the Forest's Cultural Resource Inventory Plan was validated.

There are two historic sites in the scenic river corridor with potential for interpretation. The buildings and corrals at the North Fork Cow Camp are currently used by a range permittee. The original buildings were constructed in the late 1930s. Further research is needed before an eligibility determination can be made. The site could be exhibited with an early ranching theme.

The Dalles Military Wagon Road of the 1860s linked Canyon City and parts west with Fort Boise and other more eastern points. The Creighton (or "Craton") Road was used originally to transport hay from the Grand Ronde Valley to Fort Harney in the 1860s and 70s. It leaves the Old Dalles Military Road at the mouth of Crane Creek then follows Rattlesnake Ridge south to Mahogony Spring, where it leaves the forest.

Recreation

The scenic river corridor is primarily roaded natural in the northern half and semi-primitive, non-motorized in the southern part on the Recreation Opportunity Spectrum (ROS).

Fishing and dispersed camping are the primary recreational activities in the scenic river corridor. The river has been stocked with rainbow trout since in mid-1950s and attracts both local anglers and those residing away from Grant County during the summer and fall.

Fishing is concentrated at major road crossings and dispersed camping areas. An example of this is the area south of the Forest Road 1675 river crossing. Many anglers use the facilities at the North Fork Malheur Campground, where the river is stocked, and Crane Crossing Forest Camp.

For trophy sized fish, anglers must explore areas accessed by the North Fork Malheur River Trail south of Crane Crossing.

Fires near the corridor during 1989 and 1990 altered the pattern of camping, attracting a multitude of mushroom harvesters. In ordinary years, the heaviest concentration of camping adjacent to the corridor occurs during deer and elk hunting seasons.

Twenty-six dispersed camping sites have been inventoried along the river corridor. Some are not conspicuous but others contain primitive, user-constructed facilities such as toilets, benches, meat poles, and rock fire rings. Most of these camping sites are within 100 feet of the river and numerous footpaths and other trampled areas with barren ground have resulted in reduced riparian vegetation.

North Fork Campground and Crane Crossing Forest Camp are within the scenic river corridor. Elk Creek Campground is outside the corridor but accommodates river visitors. There is no special access provided for the disabled.

The North Fork Malheur River is not often used for white water boating. Due to a livestock drift fence, the distance that is floated below Crane Crossing Forest Camp is limited to a half mile. Whitewater boating can occur only during periods of high river flow. Many portions of the river are difficult to access.

Other recreational opportunities in the corridor include hiking and bird watching and could increase in popularity as a result of attention created by scenic river designation. This could occur without additional access because the attraction of the area is a natural appearing environment.

Timber management, livestock grazing, and facilities constructed to facilitate grazing can detract from recreational experiences along the river. This includes a few old timber harvest units and skid roads, piles of slash, fences, water developments, and livestock.

Range activities currently cause the most serious conflict with recreation. Livestock in or adjacent to dispersed camps remove vegetation, cause erosion, increase dust, and deposit manure. Fences interfere with cross country travel and some recreationists are intimidated by cattle in the woods.

Recreational pursuits outside the river corridor could affect recreation within the northern part of the river corridor if the proposed Glacier All-Terrain Vehicle Area is established west of the river. Depending on the scale of the development, camping and ATV use (and its associated noise) may spill over into the river corridor.

Access

The North Fork Malheur Trail (No. 381) starts a mile south of the North Fork Campground and runs south approximately 12 miles down the corridor.

Motorized vehicles are prohibited on this trail, which parallels the river riparian zone. Erosion attributed to use of the trail by livestock has narrowed the tread in some areas.

Use of the trail is low to moderate, concentrated on the upper six to eight miles. Below this area, access is difficult. The undeveloped southern trailhead is inaccessible to passenger vehicles and is rarely used. The northern trailhead also is undeveloped. A large number of fire-rings, human waste, and trampled vegetation attest to the heaviness of use, however.

The original entrance to this trailhead was closed with a berm and current egress can be confusing. There are no parking areas, sanitary facilities, or horse facilities.

There is a proposal to designate a portion of the lower part of the North Fork Malheur Trail as part of the Desert Trail, a cross country trail which traverses southeast Oregon. This would not require any new construction.

There is an old trail down Skagway Creek which accesses the river about a mile above the southern end of the North Fork Malheur Trail.

The Elk Flat Trail (No. 362) begins at Forest Road 13 and crosses Road 13 334 before fording the river. It continues eastwardly within the corridor for approximately 1,200 feet before departing the corridor boundary, and eventually ends at the 1370 road in Elk Flat Creek. There is no developed trailhead for this trail within the corridor.

There are approximately 13 miles of designated and groomed snowmobile trails within or immediately adjacent to the river corridor. Cross-country skiing is limited in the corridor because of difficult winter access. The use of mountain bikes on the North Fork Malheur River Trail has increased in recent years, but is considered light.

Most of the northern river can be reached by automobile from paved or gravel roads. Forest Roads 13, 16, and portions of 1675 border the western boundary of the scenic river corridor.

Forest Road 13, a paved travelway, parallels the river for about 4 miles. Road 16 parallels the river from the junction of Road 13 to Forest Road 1675. Both roads vary in distance from the river from several hundred feet to over 1/4 mile.

Recreationists currently share these roads with logging trucks, livestock trucks and other commercial vehicles.

Road 1675 parallels the river at a distance of several hundred feet from the junction with Forest Road 16 to the North Fork Malheur River Trailhead, and has a good gravel surface in this area.

There are numerous low standard roads which access dispersed camping areas within the corridor. Most are used from early spring to late fall by high clearance vehicles. Some are actively eroding and deteriorating because of rutting by four wheel drive vehicles negotiating steep slopes in wet weather.

Mining

A search of mining claim records and mining literature disclosed no evidence of mining in or adjacent to the scenic river. There are, however, eight occurrences of hot spring-type mineralized rock within 20 miles of the lower river corridor. They are found in the same volcanic rock type which are currently being explored by mining companies. The potential for precious minerals in concentrations high enough to be economically feasible to mine is considered low within the corridor.

Chapter Three

Management Alternatives

The interdisciplinary planning team evaluated five alternatives for managing the North Fork Malheur Scenic River Corridor. They are described below. Several others were considered but not analyzed in detail. They will also be described.

All five alternatives address the major issues described in Chapter 1. Four outstandingly remarkable values, scenery, geology, fisheries, and wildlife habitat are given special attention.

Significant Issues

1) Protection and Enhancement of Outstandingly Remarkable Values
- *Scenery
- *Geology
- *Fisheries
- *Wildlife Habitat

2) Recreation

3) Grazing by Domestic Livestock

4) Timber Management/Timber Harvest

5) Water Quality and Watershed

6) Old Growth Protection

The alternatives should describe a range of approaches to addressing purpose and need while addressing identified issues in a variety of ways. A variety of resource outputs are provided on most alternatives but every management strategy emphasizes the protection of scenic river values.

A chart on Pages III-10 and 11 provides a quick glance at how each alternative would treat major resources in the scenic river corridor.

Consultation With Others

Public Involvement

A preliminary draft of six alternatives for managing the North Fork Malheur Scenic River was distributed to the public in December 1991. A meeting was held with the Oregon Department of Fish and Wildlife in Hines shortly thereafter to discuss these initial alternatives.

A briefing was held for the Grant County Court, which conducted a meeting attended by more than 60 individuals on January 15, 1992. Affected range permittees met to discuss alternatives in Drewsey on January 22, 1992. A record of the discussion was kept and several letters from permittees were later received.

Alternatives Considered But Not Fully Analyzed

More than 100 written comments about the six preliminary alternatives were received. They were analyzed by the interdisciplinary team. Following this analysis, several alternatives which called for actions described below were modified and one was dropped. Alternative 5 was added to the range of alternatives as a direct result of public comment.

Two special interest groups suggested Congress be asked to declare the southern portion of the corridor a wild river. This section meets the physical criteria for wild rivers but was considered unsuitable in the Omnibus Oregon Wild and Scenic Rivers Act.

This was determined to be beyond the scope of the environmental assessment by the Forest Service. It was pointed out that the management of that section of the river in Alternative 5 would approximate wild river management, but without a minerals withdrawal on the area and without a legal designation by Congress through an amendment of the Wild and Scenic Rivers Act.

Conversely, another respondent sought elimination of the northern portion of the scenic corridor, holding that only the lower portion possesses significant geologic and scenic river values, the ones specifically mentioned in the Congressional Record which discussed this river. This would also require Congressional action and was determined to be beyond the scope of this planning process.

Several preliminary alternatives proposed restricting the fishing season and limiting fishing to specialized fishing only, allowing fly fishing only, barbless hooks, etc. in response to the impact current fishing may be having on redband and bull trout. There were also proposals for more fish stocking and elimination of fish stocking, and the prohibition of introduction of non-indigenous fish and wildlife species. These were not pursued because the Oregon Department of Fish and Wildlife is responsible for regulating these activities.

Proposals to adopt the less constraining visual quality objectives of modification or partial retention were dropped from consideration because it was felt that these levels of alteration would not provide the necessary protection of the scenic values. In the range of final alternatives, described below, are alternatives which do allow partial retention for a short period of time, during which enhancement projects may be initiated.

A prohibition of livestock grazing was also sought, but this could violate the Wild and Scenic River Act. Several preliminary alternatives proposed prohibiting grazing from all or portions of the corridor. Alternative 2 would remove livestock from the corridor with the consent of the permittees. It provides the decision maker with information about the full range of impacts from grazing.

An alternative was proposed which would have allowed the developed recreation opportunities within the corridor to be greatly increased. This proposal was dropped because of lack of public support and the indirect effect it would have on river values.

Alternative 5 was developed in response to public expressions of satisfaction with current level of development and recreation opportunities and dissatisfaction about conflicts with grazing livestock and timber harvest activities. Grazing would not occur during the peak recreation season and timber harvest would occur only above Crane Creek Crossing and would be limited (not part of the scheduled harvest).

Several suggestions by range permittees became elements of various alternatives. This includes a proposal to abandon a southern trailhead and access trail to the river and replace it with a trailhead and trail down Skagway Creek.

Terminology

(Also see Glossary for more definitions)

The description of alternatives below employs concepts and language from the Forest Service Visual Management System and Recreation Opportunity Spectrum.

The Visual Management System: Visual quality objectives establish acceptable levels of landscape alteration based on management objectives. Those which could be applied in the scenic river corridor include:

Preservation - Allows only ecological changes. Management activities, except for very low visual impact recreation facilities, are prohibited. This objective applies to specially classified areas, including wilderness.

Retention - Provides for management activities that are not visually evident. Management activities are permitted, but the results of those activities on the natural landscape must not be evident to the average viewer.

Partial Retention - Management activities may be evident to the viewer but must remain visually subordinate to the surrounding landscape.

The Recreation Opportunity Spectrum (ROS): Camping in a large undeveloped setting with difficult access and few facilities provides one sort of experience, visiting a campground with easy access and developed facilities another. The Recreation Opportunity Spectrum provides a framework for identifying, evaluating, and managing the variety of recreational settings the Forest can provide. ROS classes included in scenic river planning included:

Semi-primitive, Nonmotorized: Predominantly natural or natural-appearing environments. Motorized recreation is not permitted. Interaction between visitors is infrequent but there is often evidence of others.

Semi-primitive, Motorized: Predominantly natural or natural-appearing environments. Motorized recreation on local primitive or collector roads and trails is permitted. Interaction between visitors is infrequent but there is often evidence of others.

Roaded Natural: Areas characterized by predominently natural-appearing environments. The sights and sounds of human activity are more frequent but usually harmonize with the natural environment. Motor vehicles are permitted.

Alternatives

In all alternatives, the Malheur Forest Plan standards and guidelines for managing the various resources found within the river corridor will apply unless superseded by more specific management direction in these alternatives.

For example, riparian areas would be managed according to Forest Plan Management Area 3A standards and guidelines unless more stringent restrictions are proposed. Any changes from current Forest Plan direction for managing this river corridor will be an amendment to the Forest Plan.

Alternative 1 - No Action

The no action alternative projects a continuation of current management in the scenic river corridor. Direction is provided by the Malheur National Forest Plan. This alternative provides a baseline for comparison of the other alternatives.

For RECREATION, the Opportunity Spectrum Class would be semi-primitive, non-motorized but some motorized travel would be permitted. SCENERY would be protected by applying the retention visual quality objective to the foreground, partial retention to the middleground, and modification to the background. Some recreation facilities could be developed; they

would have to be compatible with the partial retention visual objective. The North Fork Campground would be reconstructed at some point in the future.

CULTURAL RESOURCES would be identified, evaluated, preserved and protected. A cultural resources inventory would be conducted, recording and evaluating the significance of all historic and prehistoric sites.

FISH AND WILDLIFE projects would be allowed if they meet the management area objectives. The emphasis would be on maintaining and improving habitat, enhancing opportunities to view wildlife, and sensitive, endangered, and threatened species. Habitat for between 60 and 100 percent of the potential population of primary cavity escavators would be provided.

GRAZING would be permitted under approved management plans at Forest Plan utilization standards. It would have to be compatible with other resource values. Range improvements would have to meet visual quality objectives.

During development of the Forest Plan, 6,163 acres in the scenic river corridor were considered suitable for timber management. When the river corridor boundary was established, 3,280 potentially suitable acres were included. Suitable timber land that was not included, 1,091 acres, became part of an adjacent visual corridor (Management Area 14). Another 875 acres was identified old growth. Riparian areas and the river itself make up 917 acres.

It was assumed that silvicultural prescriptions meeting the visual quality and other management objectives could be written and implemented to permit sustained harvest from these tentatively suitable lands.

MINERAL entry would be allowed. Operating plans would take other resource values into account.

National Forest LANDS would be retained. No additional lands would be acquired.

The construction of short stretches of conspicuous or longer stretches of inconspicuous and well screened ROADS would be allowed. The river could be bridged occasionally. The types of road users (current and future) and impacts on scenic river values would be taken into consideration.

Existing TRAILS would be maintained. Construction and maintenance of trails would be at minimum levels necessary to achieve objectives. Work would occur during low use periods and power equipment could be used. Twelve miles of trail would be built in the north portion of the corridor.

UTILITY CORRIDORS would be discouraged. Scenic, recreational, and fish and wildlife values would be considered in the selection of new rights-of-way.

OTHER concerns include habitations and fisheries enhancement structures. Habitations with direct adverse effects on river values would not be allowed. Fisheries enhancement structures and activities would be allowed. Dams, power facilities, and levees would be prohibited.

Prescribed FIRE could be used to meet resource management objectives. Natural fires may be used to allow fire to play its natural role.

Endemic infestations, such as insects or disease, are natural and would not be treated. Epidemics that threaten scenic values or adjacent lands may be treated.

Alternative 2

This alternative restricts activities within the corridor to those which would least alter natural conditions. It responds to public requests for an evaluation of low impact management.

OLD GROWTH habitat would be maintained in individual stands and large contiguous blocks providing habitat for old growth associated species and connectivity between habitats for all wildlife species. Approximately 3,400 acres would be available and no management through timber harvest would occur.

WILDLIFE habitat would be maintained to provide for existing populations of wildlife species. Habitat for 100 percent of the potential populations of primary cavity excavator species would be provided. Although wildlife habitat improvement projects would be prohibited, maintenance of existing habitats with prescribed fire or by other means would be allowed.

The preservation visual quality objective would apply in the river corridor to protect SCENERY but this could be relaxed to retention for necessary recreation facilities and wildlife and fisheries projects. The effects of prescribed fire would be treated as natural appearing for the purposes of visual analysis.

There would be no GRAZING within the corridor. This provision would require the cooperation and concurrence of the range permittees before it could be selected. Facilities at the North Fork Cow Camp could be removed from the river corridor after its historical significance is evaluated. The current use of this site by the grazing permittee under a Special Use Permit (which expired on December 31, 1989) will be discontinued. The grazing permittee would be given three years (until September 1995) to phase out this portion of the ranching operation. The permittee would remove the improvements but might be permitted to move then to another location after a thorough environmental analysis.

Approximately 13 miles of new fencing and five new cattleguards or gates would be needed to exclude cattle from the corridor. Existing fences and other range improvements within the corridor would be removed or relocated to the river corridor boundary.

No lands within the corridor would be classified as suitable for TIMBER MANAGEMENT. No harvest would occur but cutting trees to eliminate a safety hazard would be allowed.

RECREATION in the corridor would be restricted and concentrated at Elk Creek and North Fork Campgrounds. Dispersed camping would be discouraged and access roads to existing dispersed sites would be closed. Facilities at Crane Creek Crossing would be removed and road access to the Crossing eliminated. No new trails would be constructed and the North Fork River Trail would no longer be maintained; over time it would close naturally. The ROS class would be roaded natural north of the existing north trailhead of the North Fork Malheur River Trail and semi-primitive, non-motorized to the south.

WATER QUALITY problems, such as eroding roads and trails, would be mitigated. WATERSHED restoration improvements would be allowed but "hard" structures, such as weirs and bank armoring, would not.

FISHERIES habitat would be managed to maintain native fish populations. Habitat improvement projects would be in keeping with the natural theme of the alternative. Only non-structural improvements, such as shrub and tree planting, vegetative riprap placement, the addition of large woody debris, and seeding would be allowed.

Alternative 3

This alternative allows for a high level of recreation and development within the river corridor while producing relatively substantial levels of forage and timber production.

Approximately 875 acres of OLD GROWTH habitat would be managed according to Forest Plan Management Area 13 standards to meet the minimum population needs of old growth associated species.

FISHERIES improvement projects of all types would be undertaken to protect existing populations of threatened, endangered or sensitive species.

WILDLIFE habitat would be managed to increase species richness and diversity. Habitat improvement projects of all types would be permitted and opportunities for viewing wildlife emphasized. Habitat to provide at least 60 percent of the potential populations of primary cavity excavator species would be provided.

The retention visual quality objective would be applied corridor-wide to protect SCENERY but may be relaxed to partial retention for a short period of time to benefit outstandingly remarkable scenic river values. This option is provided because of current levels insect and disease killed trees. Stand improvement projects would require site specific analysis and could be performed only until the Forest Plan is revised (5 to 10 years). Partial retention can also be applied to perform necessary recreation facilities, fencing, wildlife improvements, and fisheries improvements.

GRAZING would meet Forest Plan utilization standards. The current permittee would continue to use the North Fork Cow Camp as authorized under terms of the grazing permit, which will specify what improvements will be allowed to remain. Only structures necessary for management of this allotment or which were originally part of the 1985 Special Use Permit will be permitted. These facilities will now be authorized under the permittee's Term Grazing Permit and contain a number conditions having to do with the number of occupants, maintenance of structures and facilities, use of recreational and working livestock, and upgrading facilities, including the access bridge across the river.

New fences within the corridor and along the corridor boundary could be constructed. Fences could cross the river and riparian zone but this would generally be discouraged and fences must not impede the free flowing condition of the river. Fences paralleling the river are excluded in the riparian zone.

All tentatively suitable lands would be classified as suitable for TIMBER MANAGEMENT but in order to meet visual and other objectives harvest would not be full yield. Scheduled and non-scheduled harvest would occur. Temporary roads could be constructed north of the 1675 road if needed, but prohibited south of the 1675 road.

A high level of RECREATION would be encouraged and accommodated. Alternative 3 proposes a new campground in the Cow Camp-Short Creek area. The North Fork Campground could be reconstructed or a new campground built in the same area. Facilities at Crane Creek could be improved and an access road maintained to higher standards. An exclosure fence would be constructed around these facilities.

The ROS class for the river would be roaded natural north of the existing north trailhead of the North Fork Malheur River trail and semi-primitive, non-motorized south of this point. Approximately 12 miles of trail in the northern part of the corridor would be constructed along the river as an extension of the North Fork Malheur River trail.

Motorized travel would be allowed on this new trail north of the 1675 road. Four new trailheads would be constructed, two would be eliminated. Trails south of 1675 road would be hiker, equestrian, and mountain bike trails only. A new trail would be constructed down Skagway Creek and a new trailhead constructed at Dead Horse Reservoir, outside the river corridor. The current access trail from rim to to the river near Shale Rock Reservoir would be closed and rehabilitated.

The WATERSHED would be managed to meet state water quality standards. Structural and non-structural watershed improvement projects

would be allowed. Improvements could not interfere with free flowing conditions of the river and would have to meet visual and other objectives.

Alternative 4

This alternative would maintain and improve ecosystem health in the scenic river corridor while allowing recreation to continue at a somewhat lower level than today. Grazing and timber harvest would be lower than Alternatives 1 and 3.

OLD GROWTH habitat would be maintained in both isolated stands and contiguous blocks totalling 1,200 acres. This would provide connectivity for wildlife species and habitat for species associated with old growth.

The FISHERIES habitat would be managed to protect or enhance native fish populations. Habitat maintenance and improvement projects of all types would be permitted if they meet other management objectives.

WILDLIFE habitat would be managed to enhance species richness and diversity. Habitat improvement projects of all types are permitted and there would be an emphasis on the use of prescribed fire. Enough habitat to accommodate 100 percent of the potential populations of primary excavator species would be provided.

SCENERY would be protected and enhanced as in Alternative 3. The relaxing of visual quality objectives to improve forest health will also apply in this alternative.

GRAZING would be limited to improve and restore riparian values. Forage utilization would meet Forest Plan standards. Intensive grazing management and control would be encouraged where it is feasible. This would require a Forest Plan amendment. Fifty percent forage utilization would be the maximum on sites where range conditions are satisfactory with intensive grazing management. This would be implemented through Allotment Management Plans as range conditions improve. Fencing described in Alternative 3 would be allowed within the corridor.

All tentatively suitable lands would be classified as suitable for TIMBER MANAGEMENT. Scheduled and unscheduled timber harvest would be allowed but with lower yields than Alternative 3 due to visual and wildlife old growth objectives. No new roads would be constructed for timber harvest.

Dispersed RECREATION sites which are creating resource damage would be closed or rehabilitated. The North Fork Campground would be reconstructed sometime in the future with more capacity added. Facilities at Crane Creek Forest Camp would be improved with better toilets, picnic tables, and other camping facilities. A cattle exclosure fence would be constructed around this dispersed site.

The ROS class would be semi-primitive, non-motorized south of the North Fork Malheur River Trail north trailhead and roaded natural north of this point.

This trailhead would be reconstructed to provide better resource protection and user satisfaction. A new trail would be constructed down Skagway Creek with the trailhead at Dead Horse Reservoir (outside the river corridor). Roads closed in corridor could be used for mountain biking, hiking, and horseback riding but motorized vehicles would not be permitted.

WATERSHED protection would be through limits on ground disturbing activities. The level of watershed improvement activities would be the same as in Alternative 3 but the objective would be to exceed state water quality standards.

Alternative 5

This alternative provides for some grazing and timber harvest but emphasizes a balance between aesthetics and utilization of the river corridor. It was developed in response to public requests for an alternative perpetuating current levels of recreation with less grazing and timber production.

OLD GROWTH habitat would be maintained to enhance populations of old growth associated species within the river corridor. Approximately 2,000 acres of old growth would be managed to provide habitat over time. The corridor would continue to provide connectivity between adjacent wildlife habitat areas but at a level less than Alternative 2 provides.

The FISHERIES habitat would be managed as in Alternative 4.

WILDLIFE habitat diversity would be increased, providing for more richness of species than Alternatives 1, 3 or 4. Structural and non-structural habitat improvement and maintenance projects of all types would be permitted. Enough habitat to meet 100 percent of the potential populations of primary cavity excavator species would be provided.

Management activities would be conducted in such a manner that the natural SCENERY appears unaltered. To the north of Crane Creek Crossing, the visual quality objective would be retention; to the south, preservation. Prescribed fire would be managed to minimize short term effects to scenery. These effects would be considered natural and would meet visual objectives even when they are obvious. Necessary facilities and improvements would meet the partial retention visual quality objective.

GRAZING within the river corridor would be allowed with forage utilization levels which meet Forest Plan standards. Below Crane Creek Crossing, with the concurrence of the range permittees or as established in allotment management plans, grazing would only occur before July 1 and after September 15. To facilitate this restriction, 13 miles of new fencing may need to be constructed. Grazing above Crane Creek Crossing would be unaltered.

The current permittee would continue to use the North Fork Cow Camp as authorized under terms of the grazing permit, which will specify what improvements will be allowed to remain. Only structures necessary for management of this allotment or were originally part of the 1985 Special Use Permit will be permitted. These facilities will now be authorized under the permittee's Term Grazing Permit and contain a number conditions having to do with the number of occupants, maintenance of structures and facilities, use of recreational and working livestock, and upgrading facilities, including the access bridge across the river.

There would be no lands classified as suitable for TIMBER MANAGEMENT. North of Crane Creek Crossing, limited harvest would be allowed to meet visual, wildlife, forest health, and other objectives. Low impact harvest methods would be used and the volume would be unscheduled (not included in the Forest's allowable sale quantity). Below Crane Creek Crossing, no harvest would occur. No new roads would be constructed within the corridor for timber harvest.

RECREATION in the river corridor would remain essentially unchanged. No new facilities would be constructed but there would be minor improvements to existing facilities and roads. Road access to existing dispersed campsites would remain open but no new roads would be constructed. The cattle exclosure fence around Crane Creek Forest Camp will be allowed as in Alternative 3.

The ROS class will be roaded natural north of the north trailhead of the North Fork Malheur River Trail. South of this trailhead the ROS

would be semi-primitive, non-motorized and restricted to mountain bike, hiker, and horseback riders. As in Alternatives 3 and 4, the Skagway Creek trail and trailhead could be constructed. The existing trail from Shale Rock Reservoir to the river would be closed.

WATERSHED AND WATER QUALITY improvement projects would be at the same level as those proposed in Alternative 3.

ALTERNATIVE SUMMARY

	ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III	ALTERNATIVE IV	ALTERNATIVE V
OLD GROWTH Management	875 acres	3,400 acres	875 acres	1,200 acres	2,000 acres
FISHERIES IMPROVEMENTS	Some improvement projects allowed.	Habitat improvement limited to non-structural types and native material	Habitat improvement projects of all types are permitted	Same as Alt 3	Same as Alt 3
WILDLIFE HABITAT IMPROVEMENTS	Some habitat improvements allowed. Meet between 60-100% cavity nester habitat.	Maintain existing high quality habitats, but no improvments. Meet 100% cavity nester habitat.	Allows habitat improvements of all types. Meet 60% of potential of cavity nester habitat.	Allows habitat improvements of all types. Meet 100% of potential of cavity nester habitat.	Same as Alt 4.
SCENERY PROTECTION: VISUAL QUALITY OBJECTIVES	A combination of visual quality objectives apply: foerground retention and facilities and middle-ground retention.	The visual quality objective of preservation applies throughout the corridor. Facilities meet retention.	The visual quality objective is retention, except partial retention will be allowed for a period of time.	Same as Alt 3	The visual quality objective is retention above Crane Creek and preservation below Crane Creek.
For Alternatives 2 and 5, effects of prescribed fire will be considered natural appearing characteristics of the landscape. Though the use of prescribed fire is a management activity, it's use will not be constrained primarily because of the constraints associated with the visual quality objectives of these alternatives. Mitigation measures to minimize the impact of prescribed fire will be implemented where appropriate.					
UTILIZATION OF GRASS, SHRUBS, AND FORBS BY LIVESTOCK AND WILDLIFE	Livestock grazing will continue in the corridor. Forest Plan forage utilization standards will be met.	No livestock grazing will take place in the corridor. The NF Cow Camp Facilities may be removed.	Same as Alt 1.	Grazing will continue with more riparian condition emphasis. Allows intensive grazing management.	Allowed N. of Crane Creek-same stds. as 1. Restricted season of use below Crane Creek to avoid high rec. period.
TIMBER SUITABILITY HARVEST	All 3,280 tentatively suitable acres will be managed, including non-scheduled harvests.	None of the tentatively suitable acres will be determined suitable. There will be no timber harvests.	Same as Alt 1.	2,952 of tentatively suitable acres will be determined suitable and available for management.	None of the tentativley suitable will be determined suitable. Non-scheduled harvest will be allowed north of Crane Creek.

ALTERNATIVE SUMMARY CONTINUED

	ALTERNATIVE I	ALTERNATIVE II	ALTERNATIVE III	ALTERNATIVE IV	ALTERNATIVE V
RECREATION Recreation Opportunity Spectrum and Recreation Facilities	The corridor will be managed to provide a semi--primitive non-motorized experience. Some roads will be allowed. Campgrounds, trails and other facilities are permitted.	The corridor will be managed to provide both roaded natural and semi-primitive non-motorized areas. The NF Malheur River Trail will no longer be maintained. Roads to dispersed campsites will be closed. Allows camping in developed campgrounds only. No new trails.	ROS is same as Alt 2. Reconstruction and construction of campgrounds allowed 14.5 miles of new trail construction. Dispersed camping opportunities will increase. Better dispersed facilities	ROS is same as Alt 2. Reconstruction of NF campground. Some existing dispersed sites may be closed. 2.5 miles of new trail constructed.	ROS is same as Alt 2. Limited improvements to existing recreation facilities allowed but no new construction will be allowed. Trail construction is same as Alt 4.
WATER QUALITY	River will meet the State water quality standards. Improvement projects are allowed.	Alternatives 2, 3, 4, and 5 will all provide river water quality which meets or exceeds State quality standards. Hard improvement structures such as weirs and armoring are prohibited in Alt 2.	Watershed and water quality improvement projects of all kinds are allowed in Alts 3, 4, and 5 which do not intefer with free flow and which meet the visual quality objectives.		

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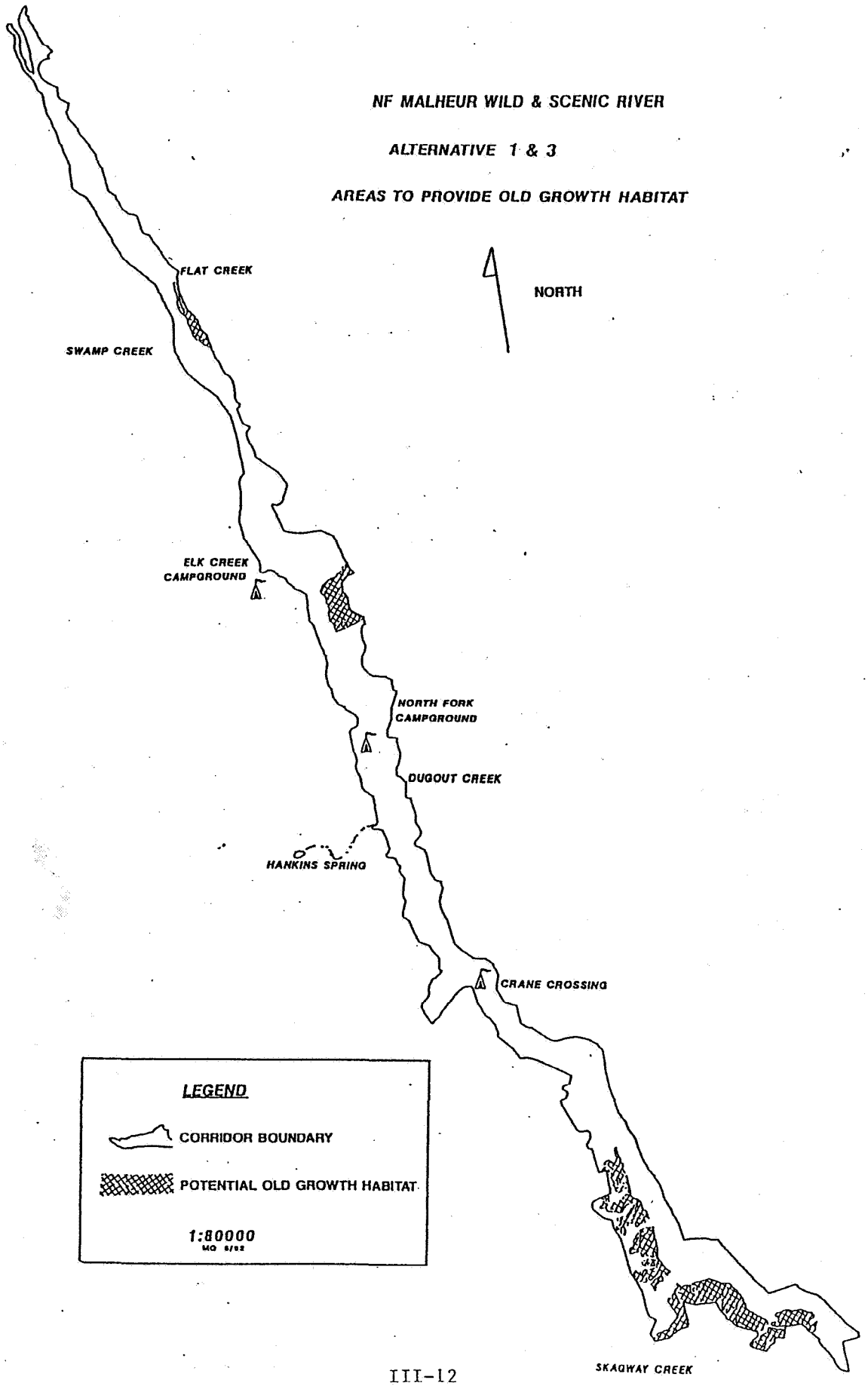
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ALTERNATIVE 1 & 3
AREAS TO PROVIDE OLD GROWTH HABITAT
NORTH
FLAT CREEK
SWAMP CREEK
ELK CREEK CAMPGROUND
NORTH FORK CAMPGROUND
DUGOUT CREEK
HANKINS SPRING
CRANE CROSSING
SKAGWAY CREEK
LEGEND
CORRIDOR BOUNDARY
POTENTIAL OLD GROWTH HABITAT
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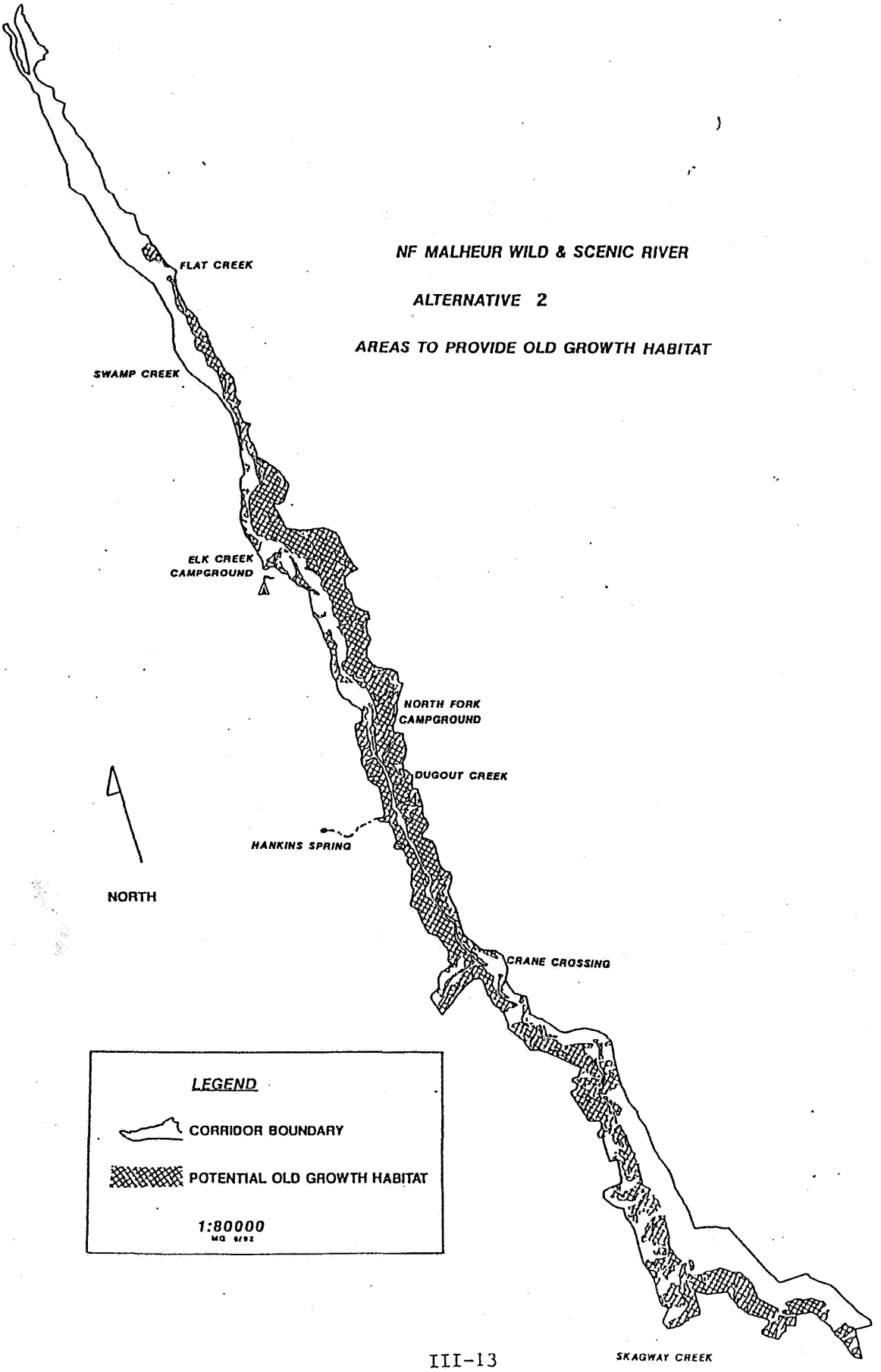
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ALTERNATIVE 2
AREAS TO PROVIDE OLD GROWTH HABITAT
FLAT CREEK
SWAMP CREEK
ELK CREEK CAMPGROUND
NORTH FORK CAMPGROUND
DUGOUT CREEK
HANKINS SPRING
NORTH
CRANE CROSSING
SKAGWAY CREEK
LEGEND
CORRIDOR BOUNDARY
POTENTIAL OLD GROWTH HABITAT
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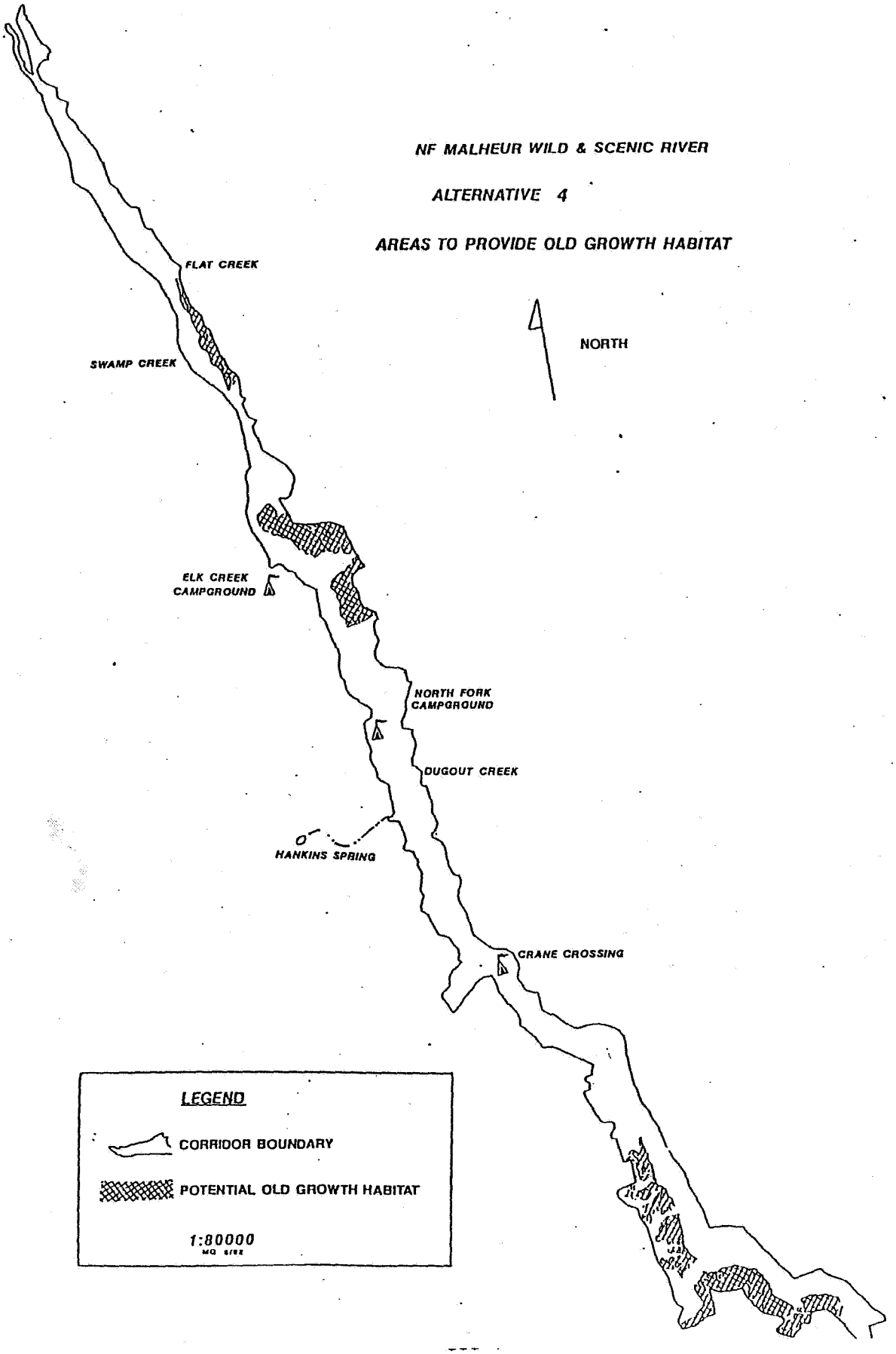
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ALTERNATIVE 4
AREAS TO PROVIDE OLD GROWTH HABITAT
NORTH
FLAT CREEK
SWAMP CREEK
ELK CREEK CAMPGROUND
NORTH FORK CAMPGROUND
DUGOUT CREEK
HANKINS SPRING
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POTENTIAL OLD GROWTH HABITAT
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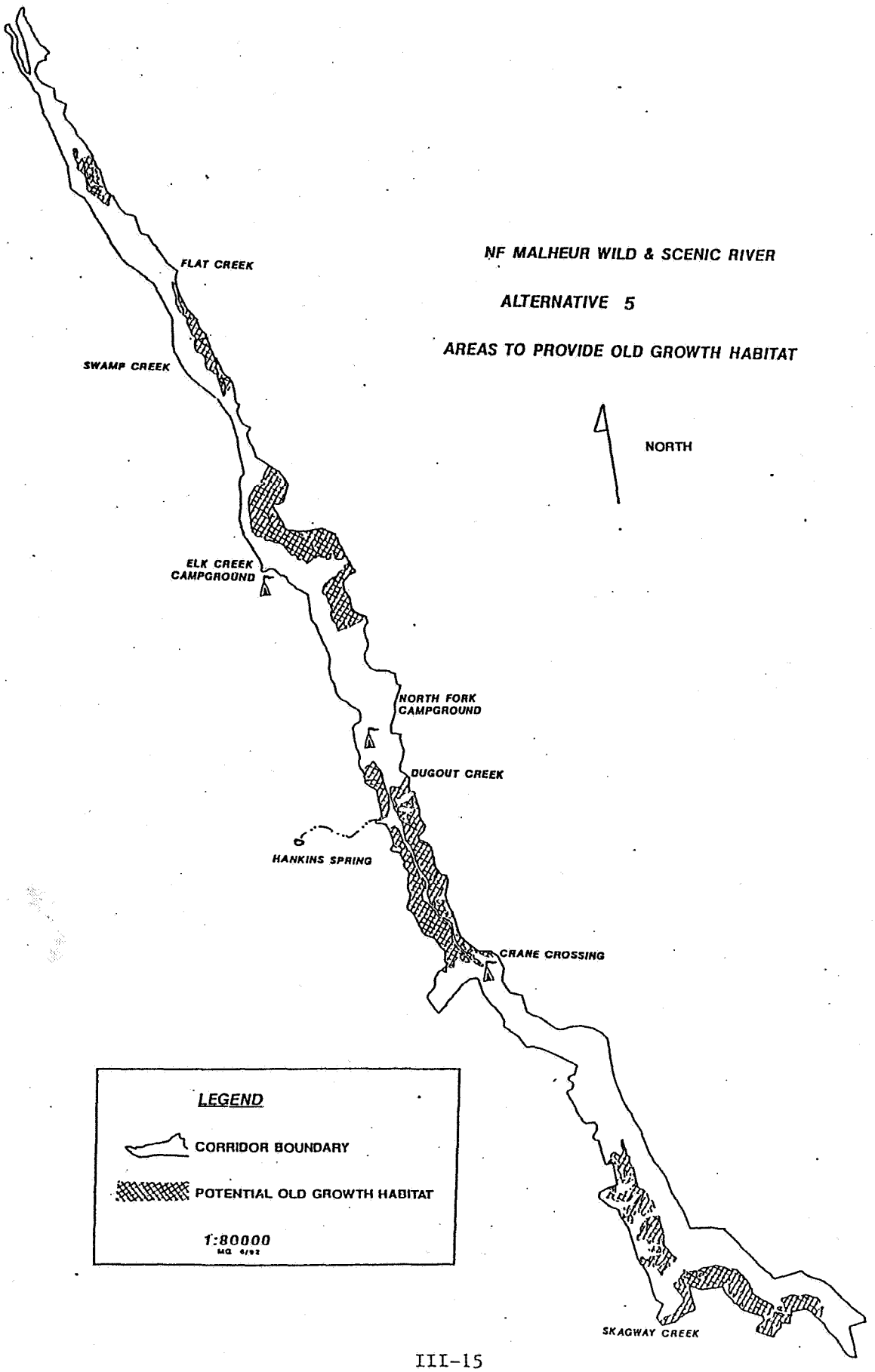
NF MALHEUR WILD & SCENIC RIVER
ALTERNATIVE 5
AREAS TO PROVIDE OLD GROWTH HABITAT
NORTH
FLAT CREEK
SWAMP CREEK
ELK CREEK CAMPGROUND
NORTH FORK CAMPGROUND
DUGOUT CREEK
HANKINS SPRING
CRANE CROSSING
SKAGWAY CREEK
LEGEND
CORRIDOR BOUNDARY
POTENTIAL OLD GROWTH HABITAT
1:80000
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Chapter Four

Environmental Consequences

This chapter forms the scientific and analytic bases for the comparison of alternatives. It is an assessment of the effects, both positive and negative, of implementing five alternatives for managing the scenic river with special emphasis on its outstandingly remarkable values. Short-term, long-term, direct, indirect, and cumulative effects are disclosed. For some resources, no cumulative effects were identified.

Scenery

The scenery of the river corridor has been assessed to be an outstandingly remarkable value, hence it must be protected and/or enhanced for the enjoyment of present and future generations. All the alternatives provide for protection and enhancement, but at different levels.

Effects Common to All Alternatives

Application of preservation and/or retention visual quality objectives in all alternatives will result in a natural appearing river corridor. There will be a slightly altered appearance where the partial retention visual objective is applied.

All management activities will be conducted according to the concepts of landscape ecology and scenic resource planning and will meet visual quality objectives. Projects will be designed to blend with the natural terrain and avoid stark contrast with the surrounding landscape.

The long-term effects of timber management on scenery include road and landing construction and open skyline logging corridors. Short term effects include removal of low vegetation, creation of logging slash, and exposed soil. The retention of large dimension trees can have a positive visual effect.

Road construction creates visual contrast between exposed soils and surrounding vegetation.

The removal of trees for recreation facilities or wildlife enhancement and the introduction of structural or architectural features will have negative effects on natural appearing landscapes, but these visual effects can be mitigated with site specific design. Any reduction of visual quality reduces the quality of a recreational experience in the corridor.

Prescribed fire is a useful tool for creating or maintaining visually attractive vegetation and for

removing residues. In the mixed conifer-pinegrass plant community, the colorful and distinct subclimax ponderosa pine can be maintained only by reducing competition by the more shade-tolerant white fir. Although the visual effects of prescribed fire can be quite conspicuous, they are usually short term. The activity helps create open, park-like stands of ponderosa pine, rejuvenates plants which require fire for regeneration, and increases opportunities to view wildflowers and wildlife.

The removal of vegetation and soil disturbances by livestock can occur in visually sensitive foreground areas along the river corridor.

Mining does not currently occur in the scenic river corridor but it could be performed. It would locally reduce the natural appearance of the stream.

Alternative 1

This alternatives calls for application of the retention visual quality objective in foreground areas, partial retention in the middleground. There is no background in the river corridor.

The sustained timber harvest output called for in this alternative would have the most significant negative effect on scenic values. While openings would be small, a change in the texture of vegetation would be visible.

Salvage logging is allowed throughout the corridor. The scenic effects could be widespread and long lasting, depending on location, scale, and salvage project design. Lodgepole pine stands, treated for forest pest problems, would be less natural appearing.

Road construction would change natural appearance by reshaping landforms and creating contrasts between exposed soil and surrounding vegetation.

While there will be an improvement over current conditions, the effects of livestock grazing would still be evident. This would included trampled areas, "cowpies", and a slower rate of streamside vegetation recovery than the other alternatives. The North Fork Cow Camp bridge and, to a lesser extent, the cabin and other structures will continue to detract from the natural appearing setting.

Alternative 2

The least alteration of natural appearance would occur because timber harvest is not scheduled. The preservation visual quality objective will be applied to the entire scenic river corridor.

There would be no salvage activities in the corridor. Insect and disease activity will be evident but this will provide opportunities for viewing wildlife and observing natural vegetation succession.

The closure and obliteration of roads would benefit visual quality.

Streamside vegetation would thrive because of the removal of livestock grazing. Taller grass and more bushes would appear, providing addition fall color in land seen from the river. The rate of recovery from the effects of current grazing would be faster than other alternatives.

The removal of the North Fork Cow Camp bridge, cabin, and other structures will provide a more natural appearing setting.

Alternative 3

The retention visual quality objective could be relaxed to partial retention at specific local sites in this alternative to deal with Forest health problems.

The treatment of insect infested stands and establishment of young healthy stands would occur when it is determined that this would have long-term positive effects on outstandingly remarkable values. In these circumstances, for the next 5 to 10 years, partial retention would be permitted.

Landscapes dominated by lodgepole pine would become less natural in appearance because of the removal of dead and dying trees. When possible, some large lodgepole will be retained.

Temporary road construction north of Road 1675 would alter the natural appearance of the area by reshaping landforms and creating contrasts of exposed soil and the surrounding vegetation.

The visual effects of site development and salvage activities would be the same as in Alternative 1. So would the effects of grazing, except that fences may be slightly more evident. The North Fork Cow Camp bridge and, to a lesser extent, the cabin and other structures will continue to detract from the natural appearing setting.

Alternative 4

The effects of timber management on scenic quality will be less than those produced by Alternative 1 and and 3 and the effects of salvage activities the same as in Alternative 3.

The overall negative effect of livestock grazing would be less than in Alternative 3. While cattle are in the corridor, however, and for a period of time immediately thereafter, the impacts would be very evident if intensive grazing management is adopted. The North Fork Cow Camp bridge and, to a lesser extent, the cabin and other structures will continue to detract from the natural appearing setting.

A more natural appearance will be produced by closing roads south of the north trailhead of the North Fork Malheur River Trail.

Alternative 5

The preservation visual quality objective applies south of Crane Crossing, retention applies north of this site. No relaxing of these standards will be allowed as in Alternatives 3 and 4.

The effect of timber management above Crane Creek Crossing would be the same as in Alternative 3. There would be no harvest below the crossing, which would produced the same effects in the corridor as Alternative 2.

The effect of road closures would be the same as in Alternative 4.

There would be less evidence of livestock grazing than in Alternative 4 south of Crane Creek Crossing during the recreation season because of the abbreviated stay of livestock on that allotment. The North Fork Cow Camp bridge and, to a lesser extent, the cabin and other structures will continue to detract from the natural appearing setting.

Comparison of Cumulative Effects on Scenery

Cumulatively, the reduction of a naturally appearing river corridor would be the largest in Alternative 1 and 3, least in Alternative 2.

Fisheries

The North Fork Malheur River fishery was one of the outstandingly remarkable features identified during the Wild and Scenic River evaluation process. Assuming the full implementation of best management practices and other established mitigation measures, the fishery would be protected and enhanced by all of the

management alternatives considered in this assessment. The length of time required to achieve the desired future condition, however, would vary between alternatives. So would the size of investments for habitat improvement.

The effectiveness of some of the best management practices and mitigation measures declines as a consequence of higher levels of ground disturbing activity. This can increase the amount of time needed to reach the desired future conditions.

Forest Plan direction for riparian areas (Management Area 3A) precludes scheduled timber harvest along Class 1 and 2 streams. The area includes at least 100 feet on each side of the stream. Adjacent floodplains and wetlands are also included which extends the no harvest buffer beyond 100 feet at numerous locations along the North Fork Malheur River.

Effects of livestock grazing described for each alternative below are contingent on revision of Allotment Management Plans. Assumptions about the rate of recovery of riparian hardwoods are from the Forest Plan Fisheries Process Paper (Gritz 1990).

Effects Common to All Alternatives

Fire, wildfire or prescribed, can affect fish habitat negatively and positively. Stream shading can be reduced increasing water temperature in the summer and icing in the winter, a negative effect for fish.

Large woody material and ground cover can also be lost, depriving streams of structural elements and increasing sediment delivery. Large fires can affect the timing of runoff and increase the size of floods. Large fires resulting from an accumulation of excessive fuels produced by fire suppression pose the greatest threat to fish habitat.

Low intensity, prescribed burning can stimulate riparian hardwood sprouting and help prevent catastrophic fires by reducing fuel loading. It is called for in all five management alternatives.

Burning to improve forage could benefit fish habitat by increasing vegetation and improving water infiltration into the soil and reducing sedimentation.

All alternatives call for improving riparian vegetation, which will improve beaver habitat. Beaver dams, which can be expected in the upper reaches of the river and in the braided channel areas above Crane Creek, make very good rearing habitat for trout.

Alternative 1

Meeting Forest Plan standards for livestock grazing in riparian areas would reduce grazing on sites identified as "unsatisfactory". These are usually areas where woody riparian vegetation is absent or present in levels significantly below site potential and places where bank trampling damage is evident.

These conditions usually occur in non-forested sites and in relatively open ponderosa pine stands, which are common in the scenic river corridor.

The objective of these standards is to produce satisfactory vegetation conditions within about 30 years without precluding some livestock grazing. The complete rehabilitation of fish habitat will not usually be realized this soon. Overhanging vegetation and stable undercut banks will require more time. A deeper and more narrow channel can be expected to develop.

Because of the riparian no harvest buffer and visual quality objectives, the effect of timber management on fish habitat would be quite small.

It might slightly reduce the amount of large woody material deposited naturally into the river. The greatest potential for sediment delivery to streams associated with timber management would be from road construction, reconstruction, and maintenance.

The construction of 12 miles of trail along the river for recreation could affect fish habitat. The direct effects of trail construction would probably be small. Improved access for livestock, hikers, and anglers could affect resident trout habitat quality by trampling streamside vegetation and sediment production. Trout populations could also be affected as there is the potential for even greater fishing pressure to result. Barriers could reduce cattle movement on the trail but the increased fishing pressure could require restrictive fishing regulations.

Fish habitat improvements would be permitted but are not mandated in Alternative 1. Limited road access and the need to meet visual quality objectives narrow the range of habitat improvement options.

Available treatments include fencing and planting hardwoods to accelerate riparian recovery, placing whole trees in the river, installing vegetation to stabilize banks and limit grazing on damaged streambanks. To meet visual quality objectives, projects would be limited and designed to appear natural.

With moderate investments in range management and fish habitat improvements, Alternative 1 could be expected to achieve the desired future condition for fish in 30 to 50 years. The upper reaches, especially above Road 1370, would reach the objective in 30 years; recovery around Crane Creek Camp would take longer.

Alternative 2

Livestock would be removed from the scenic river corridor in this alternative. Riparian vegetation recovery to satisfactory condition is expected in less than 20 years, in less than 10 in some portions of the corridor. The desired future condition of vegetation for fish habitat would be fully achieved in less than 30 years.

Direct fish habitat improvements would be similar to those in Alternative 1. Structural treatments would be restricted but visual constraints already limit these options. Trees could be placed in the river and vegetative riprap and shrub plantings could be performed.

In addition to the removal of livestock, the absence of timber harvest and road and trail construction would benefit fish habitat in this alternative. It would meet the desired future condition for water quality, bank stability, and streambank vegetation more rapidly than any of the other alternatives.

Alternative 3

Timber management in this alternative would be similar to Alternative 1 except that no scheduled harvest would occur below the North Fork Campground. Range management would also have similar effects on fish habitat, except the exclusion of cattle around Crane Creek Crossing will increase the rate of riparian recovery in this area. Recreation use along this stretch of the river will continue to have impacts to vegetation and the streambank due to trampling.

The recreation emphasis of this alternative would result in the reconstruction and rehabilitation of sites which have been the source of sedimentation. But an increase in angling produced by easier access could jeopardize sensitive fish species. Dealing with this problem could be costly and would place new demands on the Oregon Department of Fish and Wildlife.

Alternative 4

This alternative would be better for sensitive fish species and move the corridor toward the desired future condition more rapidly than Alternatives 1 and 3.

This is because of a reduction in timber harvest and, more significantly, an absence of road construction and the 12 mile recreation trail along the river. Sedimentation would be reduced by the rehabilitation of recreation sites and other facilities.

A more intensive range management strategy should result in a more rapid restoration of unsatisfactory riparian areas than in Alternatives 1 and 3, although it would not be as rapid as the withdrawal of grazing in Alternative 2.

Alternative 5

Range management north of Crane Creek would be similar to that in Alternatives 1 and 3 but the desired future condition for riparian vegetation south of Crane Creek will be more difficult to attain. This is because livestock would be permitted in the corridor before July 1 and after September 15. Grazing before July 1 is benign because grasses and forbs are more palatable than riparian hardwoods (shrubs) during this part of the growing season. The opposite is the case after September 15 when grasses and forbs are cured and less palatable and more grazing pressure on shrubs in the riparian zone will result. If utilization on shrubs is within Forest Plan standards during this late season, however, riparian vegetation condition should show improvement.

The effects of recreation management would be the same as Alternative 4. Timber management in Alternative 5 would be second only to Alternative 2 in terms of benefit to fish habitat.

Wildlife

Wildlife habitat was identified as an outstandingly remarkable value. All alternatives provide for protection and enhancement of habitat, although at different levels.

Effects Common to All Alternatives

Every alternative evaluated in this document would maintain the North Fork Malheur River corridor in a natural or near natural condition.

To comply with the Wild and Scenic Rivers Act, management activities altering stand structure would be limited. Habitat would be available for most species found in the corridor.

The recovery of riparian vegetation in all alternatives is described above in the section on fish. Populations of small mammals and passerine birds, including neo-tropical migrants (birds which winter in Latin America), would increase with improved nesting, cover, and feeding habitat. Wildlife species which use but are not dependant on riparian areas will be more frequent visitors.

Snag densities would be maintained at higher levels than adjacent land, attracting cavity excavator and cavity nesters. Old-growth habitat in excess of that allocated in the Forest Plan would be provided. It will provide habitat for pine marten and pileated woodpeckers, Management Indicator Species. Combined with old growth adjacent to the corridor, minimum habitat for three pairs of pileated woodpeckers and three to four pairs of pine marten would be provided by all alternatives.

Elk, pileated woodpeckers, and pine martin prefer seclusion and may be particularly sensitive to harassment at certain times of the year. Elk will move away, then return when human disturbance ends. Osprey, goshawk, and wolverine,

can be displaced by minimal human disturbance and may not return.

All alternatives will protect and/or enhance habitat for the Management Indicator Species which inhabit the corridor.

All alternatives would protect or enhance habitat and populations of threatened, endangered, proposed and sensitive wildlife species. Site specific biological evaluations will be completed for all future actions and will assure that:

1. Forest Service actions do not contribute to loss of viability of any native or desired non-native plant or animal species.

2. Concerns for sensitive species will be incorporated throughout the planning process, reducing negative impacts to species and enhancing opportunities for mitigation.

3. Activities will not cause a species to move toward Federal listing.

Alternative 1

Cover for elk and snags for primary cavity excavators would be slightly reduced by timber harvest in this alternative. Some animals would leave portions of the corridor adjacent to harvest activity sites. This should be a short-term impact.

By meeting Forest Plan grazing utilization levels, which is called for in this alternative, the desired future condition for riparian habitat should be achieved in between 30 and 50 years. The recovery of hardwoods and shrub species and additional structure from canopy layering would provide additional habitat for riparian associated wildlife species. The prey base for raptors and pine marten would increase.

The current level of visitation by anglers, hunters and other recreationists would continue; it is creating minor disturbance to big game and other species which require seclusion. Some can be expected to return, others will not.

Timber harvest would create additional disturbance and reduce the number of snags for primary cavity excavator species. Enough would remain to provide for 60 percent of the potential populations of these species. This exceeds habitat available on adjacent lands and can be expected to attract increased use by excavators and, possibly, the smaller woodpeckers.

Old-growth habitat would decrease to 875 acres. Combined with adjacent stands of old-growth and mature timber, this would provide the minimum amount of habitat for three pairs of pileated woodpeckers and three to four pairs of pine marten.

Replacement stands in the corridor will be managed to provide habitat this old growth deteriorates. These areas would continue to provide provide large diameter snags and large woody debris, foraging areas for pileated woodpeckers and habitat for marten.

Wildlife habitat would be enhanced in this alternative but less than in Alternatives 4 and 5. Alternative 2 does not permit structural wildlife habitat improvements; the absence of this restriction in Alternative 1 may result in more rapid achievement of the desired future condition in some portions of the corridor.

An indirect effect of Alternative 1 would be reduction in the populations of wildlife species associated with old growth and changes in the patterns of use.

Cumulative Effects of Alternative 1 on Wildlife

The cumulative effects of management on wildlife in this alternative would be low. A slight decrease in populations which use timber scheduled for harvest could occur.

There would be a reduction in old-growth habitat over time which would affect associated species. Future identification of old growth replacement areas would required analysis of conditions both inside and outside the corridor.

Alternative 2

Effects on wildlife and its habitat would be positive because of the removal of livestock from the corridor. Eventually, treatment by burning with prescribed fire may be required to keep the quality of vegetation from declining.

Scheduled timber harvest would also be excluded. This would result in the perpetuation of current conditions in much of the corridor. The condition of sites damaged by livestock and campers would improve because of limited access.

Riparian areas would recover and achieve the desired future condition more rapidly than in any other alternative. In some areas, recovery could occur in as few as 10 years. The Crane Crossing Forest Camp is an example of sites which are seriously disturbed. Even with rehabilitation, recovery may require 30 years.

The more rapid recovery of riparian vegetation will improve habitat for all associated wildlife species; Alternative 2 could be expected to outpace other alternatives in fostering an increase in wildlife populations.

The reduction of access for recreation along the North Fork Trail and around the Crane Creek Crossing will provide the greatest relief for animals susceptible to harassment and disturbance by humans.

Natural snag retention could be expected to provide enough habitat to accommodate 100 percent of the potential populations of primary cavity excavators within a few years. The populations of these species would increase. Other cavity nesting species should also increase in number.

None of the approximately 3,400 acres of old-growth habitat in the corridor would be harvested. When added to dedicated old growth adjacent to the corridor, these stands currently provide enough habitat to support 8 to 10 pairs of pileated woodpeckers, 10 to 15 pairs of pine marten, and an undetermined number of accipiters, such as the goshawk.

Structural habitat improvements are precluded in this alternative but the need for them would be less because of the absence of grazing.

Cumulative Effects of Alternative 2

The inability to manage these stands of old growth will reduce their quality as habitat over time and increase the risk of catastrophic loss to fire, insects, or disease. Prescribed fire may mitigate this risk but may be limited by control problems.

Alternative 3

Effects of this alternative would be similar to those in Alternative 1. A similar timber harvest level would have the same impact on old growth, cover, and snags for primary cavity excavators.

A recreation emphasis in Alternative 3 would increase disturbance of animals which require seclusion. They may move to less visited portions of the corridor or out of area entirely.

For animals which do not require seclusion, the desired future condition for wildlife habitat should be achieved at approximately the same time as it would in Alternative 1. The ability to provide structural habitat improvements, not available in Alternative 2, might accelerate movement toward the desired condition in localized portions of the corridor.

An emphasis on prescribed fire in this alternative could be expected to more rapidly achieve the results associated with that activity. This includes increasing browse, improving

forage conditions, maintaining stand structure, and reducing the potential for catastrophic fire..

Alternative 4

Less timber would be harvested in Alternative 4 than in 1 and 3 and there would be a corresponding improvement over the two in cover and snags for cavity excavator species. The 1,200 acres of old growth, more than Alternatives 1 and 3 but considerably less than Alternative 2, would accommodate four pairs of pileated woodpeckers and five or six pairs of pine marten.

There would be some decline in other species associated with old growth but less than in Alternatives 1 and 3.

Enough snags to provide habitat for 100 percent of potential primary cavity excavator species would, like Alternative 2, result in a slight increase in populations. Other cavity nesting species would also increase.

Time required to achieve the desired future condition for riparian zones would also be similar to Alternatives 1 and 3 but habitat enhancement would be superior to those two management options. Structural improvements would be permitted.

Cumulative Effects on Wildldife for Alternative 4

As with Alternative 2, the large amount of old growth would increase the possibility of large scale loss from fire, insects, or disease. The increasing value of this habitat as adjacent lands are harvested can also be considered a cumulative effect.

Alternative 5

This alternative has a greater potential for improving wildlife habitat than any of the others. There would be no scheduled timber harvest. Tree removal would be confined to salvage and other management objectives. Grazing would be modified and the highest level of habitat enhancement would occur.

Unlike Alternative 2, some tree removal would occur to provide for species which prefer early successional stages and achieve the best mix of different habitat types. The ability to perform both structural and non-structural habitat improvements would also contribute to achieving the desired condition rapidly in some portions of the corridor. This alternative could be expected to reach the desired condition more rapidly than Alternatives 1, 3, and 4. Riparian habitat conditions would improve more slowly than the would in Alternative 2.

Grazing below Crane Creek Crossing would occur only before July 1 and after September 15 and 13 miles of new fencing would help control livestock. The recovery of riparian would occur rapidly if only the early grazing occurs. If cattle use the area after September 15, restoration would be the same as in Alternatives 1, 3, and 4.

Two thousand acres of old-growth habitat, second only to Alternative 2, would be retained. Combined with designated old growth on adjacent lands, habitat for approximately five pairs of pileated woodpeckers and 8 to 10 pine marten would be provided. Habitat for goshawk would also be provided. Snag retention for cavity excavators and other cavity nesting species would be close to what would occur with no disturbance (Alternative 2).

Old growth would be managed in this alternative to enhance its future effectiveness as old-growth habitat. This could at least temporarily displace pileated woodpeckers and pine marten.

Cumulative Effects on Wildlife for Alternative 5

Prescribed fire could reduce fuel loading in old-growth habitat and foster the growth of browse species for big game. The possibility of catastrophic fire would also be reduced by some control of the density of timber stands. The

increasing value of his habitat as adjacent lands are managed would be greater than that described in Alternative 4.

Watershed

All alternatives would implement watershed protection measures contained in the Malheur National Forest Plan. Many additional constraints on ground and vegetation disturbing activities are included in the alternatives to satisfy visual, wildlife, and recreational concerns.

Because of this, it is not likely that any of these alternatives will produce seriously adverse impacts on water quality or riparian and aquatic habitat.

Watershed conditions described in Chapter 2 can be expected to gradually improve under all alternatives. The rate of improvement will be slow because the watershed is already in relatively good condition and improvement projects will be limited by the difficult access.

Alternatives 3 and 5 are basically the same as the no action alternative. Forest Plan standards for timber, recreation, and livestock management in riparian areas, the replacement of large woody debris, and the re-establishment of hardwoods would be implemented. This would move the scenic river corridor toward the desired condition for streamside shading, woody debris, and water quality. The latter involves reductions in sediment, turbidity, and bacterial contaminants.

The "hands off" approach of Alternative 2 would limit the recruitment of wood debris to natural processes, which could delay achievement of the large woody debris component of the desired condition in the middle and lower reaches of the river. Removal of cattle from the corridor in this alternative would reduce bacterial contaminants, sediments, and turbidity more than in any other alternative.

An emphasis on reducing the impacts of management activities on water quality in Alternative 4 would hasten progress toward the desired condition.

Limitations on structural developments and the Oregon Department of Fish and Wildlife's proposed instream use rights would maintain the free flowing conditions of the river in all alternatives.

Most impacts on water temperature and turbity in the North Fork Malheur River will be reflections of activities adjacent to tributaries outside the scenic river corridor. As vegetation returns in large areas defoliated the 1990 and 1991 fires, water temperatures, sediment, and turbidity will decrease in the North Fork.

Cumulative Effects on Watershed for All Alternatives

Timber harvest, road construction, livestock management, and other activities are at historic highs in many adjacent subwatersheds. The effects of these activities are expected to diminish with the implementation of Forest Plan standards in all alternatives. Effects include bacterial contaminents, sedimentation, turbidity, and increases in water temperature. Planning for future activities in these areas will take downstream Wild and Scenic values into account.

Timber

Effects Common to All Alternatives Calling for Timber Management

Forest Plan standards for resources in the scenic river corridor impose numerous requirements on timber management.

Limitations on the size of openings to meet visual quality objectives will also benefit fish by reducing sediment and big game by retaining

cover. Openings would be limited to 2 acres in areas seen as foreground.

Silvicultural prescriptions would be written to enhance outstandingly remarkable values. Treatments would emphasize long rotations to grow large diameter trees. Impacts can include disturbance to ground vegetation, reduction of stand densities, and changes in available cover and forage. These effects are expected to be short-term and the overall condition of vegetation should slowly improve.

Treatment goals would be to increase species and structural diversity. To meet visual objectives, multiple treatments will be required over time to reach the desired future condition. The repeated occurance of timber harvest and burning increases the potential for insect and disease problems, soil compaction, disturbance to wildlife, and conflict with recreation.

The riparian zone, where timber harvest is not scheduled, would protect water quality and other streamside values in all alternatives. Soil disturbance from timber harvest would be mitigated by seeding , ripping skid trails, and employing other best management practices as needed.

Alternative 1

There would be 3,280 acres suitable for timber management in this alternative and harvest on 820 acres every decade could contribute 246 thousand board feet to the Forest's annual allowable sale quantity.

During the development of the Forest Plan, but before the river corridor boundary was established, there were 6,163 acres within the corridor estimated to be tentatively suitable for timber management. At that time, an interim boundary with a uniform 1/4 mile on either side of the river was in place. The new boundary with variable widths has resulted in 1,091 of these tentatively suitable acres now outside the river corridor, and included within the visual corridor, MA 14, associated with the river. An additional 875 acres is inventoried old growth, and 917 acres is riparian area along the river and the river itself.

The density of forest stands would be slowly reduced over time in this alternative, allowing some increase in forage production.

Stands scheduled for harvest are generally away from campgrounds, developed trails and identified camp sites.

The old growth stands are not suitable for timber management, but trees could be removed in this alternative to achieve wildlife objectives and foster the development of old-growth characteristics.

Alternative 2

No timber harvest would occur in this alternative; prescribed fire would be the only silvicultural treatment available. As a result, the health of timber stands in the corridor may continue to decline due to increased insect and disease activity. Scenic quality and wildlife habitat could also be negatively affected.

The large diameter ponderosa pine overstory would gradually be lost as vigor declines and trees succumb to age and insects. During the first 50 years there would be major increases in mortality in the Big Cow Burn, currently occupied by dense stands of lodgepole pine.

Some of these effects will be mitigated by the use of prescribed fire. It is a less selective tool for manipulating vegetation and some desirable habitat components can be expected to be adversely affected. Lodgepole pine, for example, has thin bark and is susceptible to fire. There is also risk of wildfire which would increase as stand health declines over time.

The creation of large diameter, old-growth lodgepole for wildlife and visual quality would be unlikely.

Alternative 3

Effects of timber management would be the same as those produced by Alternative 1 plus the following:

There would be a site specific relaxation of visual quality objectives to facilitate salvage and forest health treatments over the next few years. This will allow some silvicultural treatments to be applied which will have short and long term beneficial effects. Increased tree vigor and a reduction of stand risks to damage and death by attack of insects will be facilitated. The shift in species composition to those species less susceptable to insect damage, and reducing competition between trees will result in healthier stands.

Multiple entries over a considerable period of time would be required to achieve the desired condition. A 250 year rotation would be used and 8 to 15 large trees per acre would remain after regeneration harvest.

As with Alternative 1, a modest increased contribution to forage production would occur. Harvest would occur on 820 of 3,280 suitable acres every ten years. An average annual contribution to the allowable sale quantity of 246 thousand board feet would be made.

Old growth management would be the same as in Alternative 1. A distribution of different size classes to produce vertical diversity would be an objective.

Alternative 4

The effects of this alternative would be similar to Alternatives 1 and 3 but constraints on harvest would be greater because of changes in timberland suitability, and more old growth for scenery and wildlife.

With 2,952 acres classified as suitable for timber management, 738 acres would be harvested every 10 years contributing an average 221 thousand board feet each year to the Forest's allowable sale quantity.

The 250 year rotation length and leave tree policy would be the same as in Alternatives 1 and 3.

There will be 1,200 acres managed to produce old-growth characteristics. As in Alternative 1 and 3, there will be no scheduled harvest but trees can be removed to enhance wildlife habitat and hasten the development of old growth.

Alternative 5

None of the corridor would be classified as suitable for scheduled timber management but unscheduled harvest would be permitted to improve forest health and achieve other objectives north of Crane Creek. There would be no contribution to the annual allowable sale quantity.

Effects would be similar to those in Alternative 1 and 3 with changes commensurate with the reduction in harvest activity. At some sites, tree removal will not be apparent.

The desired condition may require 50 years or more to be achieved.

2,000 acres would be managed for old growth with the same strategy that is used in the other alternatives.

Sensitive Plants

Alternative 1

Development of recreation facilities, range improvements, timber management, mineral entry, road construction or improvements, trail construction, and prescribed fire could all affect potential sensitive plant habitat.

Alternative 2

There would be no scheduled timber harvest and grazing. Fence construction to exclude cattle from the river corridor would pose a small risk to sensitive plants. Road obliteration and small, prescribed fires would have negligible effects.

Alternative 3

Ground disturbing activities such as fence construction, recreation facility development, trail and trailhead construction, timber management, and road construction could affect sensitive plant habitat in this alternative.

Alternative 4

The emphasis on maintaining and improving ecosystem health would reduce actions affecting sensitive plants to prescribed fire, fence construction, timber management, and trail construction.

Alternative 5

This alternative allows for current levels of recreation but would reduce grazing and timber harvest. Prescribed fire, fence construction, and unscheduled timber harvest could affect potential sensitive plant habitat.

Alternative 3 would pose the greatest threat to potential sensitive plant habitat and Alternative 2 the least. Alternative 1 ranks behind Alternative 3 and Alternatives 4 and 5 pose approximately equal risks behind Alternative 1. Timber management would produce more ground disturbance than other activities. Prescribed fire may affect a substantial number of acres but produces less disturbance and may, in some instances, enhance potential sensitive plant habitat.

Range

Alternatives 1 and 3

The construction or reconstruction of eight water developments, additional fencing, and increased emphasis on administration in the scenic river corridor can be expected to have these effects:

Areas where the condition of range is classified as good would move toward excellent; fair toward good; and poor toward fair.

The current level of conflict between livestock grazing and recreation visitors would continue. The current range trend of down and stable will move upward. There would be no major impacts on the permittees, though additional attention to grazing utilization and more active control of where and when cattle graze in the corridor will be necessary to meet the existing standards in some areas.

Alternative 2

The improvement in range conditions would be more rapid than in Alternative 1 because of the removal of livestock. This trend could eventually be reversed if the vigor of vegetation is not maintained by other means, such as fire.

Conflict between grazing livestock and recreation visitors would be virtually eliminated.

The construction of 13 miles of fence, in addition to the water developments mentioned in Alternative 1, would be a considerable expense to the government. The annual grazing fee ($570

total in 1991) would be lost. The permittees would need to find another source of forage or reduce their herd sizes.

Alternative 4

Because areas in unsatisfactory condition will be rested and the length of time animals spend grazing in the corridor reduced, the effect of this alternative on range conditions on degraded sites will be similar to that of Alternative 2. This is contingent on the adoption of intensive grazing management strategies through the allotment management planning process.

Direct conflicts between livestock and recreation visitors will be less because the total time cattle are in the corridor will decrease.

Initially, range trend will progress more rapidly than in all alternatives except Alternative 2. Eventually, it would surpass Alternative 2, unless the use of prescribed fire is effective in restoring vigor to vegetation in that alternative.

The permittees may choose to intensify management and there may be an increase or decrease of cattle use within the corridor as monitoring indicates how well forage and riparian improvement objectives are being met over time. This accelerated range management could entail additional costs to the Forest Service in permit administration and monitoring and more attention to grazing effects and labor costs to the range permittees. Allowing the intensive grazing management strategy would require an amendment to the Forest Plan.

Alternative 5

Range conditions will improve more rapidly than in Alternatives 1 and 3 but slower than in Alternative 2 and 4. Conflicts with recreation visitors would be less than in Alternatives 1 and 3.

Grazing by cattle in the corridor below Crane Crossing after September 15 would require alterations in range management systems (the usual way cattle are rotated through the grazing units) and would make an upward trend in browse species harder to sustain. At that time of year, cattle tend to prefer shrubs over dried out grasses and forbs. Meeting the utilization standard of 40 percent on shrubs in the riparian zone will be difficult if cattle are in this part of the corridor for more than a few days. Because of this, the permittee might not exercise the option of grazing in the fall.

Fire

Effects Common to All Alternatives

Prescribed fire will be used to improve wildlife habitat and visual quality. Fire will be reintroduced into areas where it was historically suppressed to reduce the buildup of volatile fuels and re-establish the natural mix of tree species. It is anticipated that fire will eventually play a more natural role in the river corridor.

The use of prescribed fire is emphasized in Alternative 2 and 5, but is an allowed management tool in all alternatives.

The use of prescribed fire will produce smoke, which contains components which contribute to air pollution. The main component of concern is particulate matter, but complex hydrocarbons, carbon dioxide and other compounds are also produced.

Some of these compounds are known to induce mutations which can result in cancer. For some unusually sensitive individuals, including people with chronic obstructive lung disease, exposure to smoke can be harmful. The magnitude of the problem is determined by the duration of exposure and concentration of the smoke. Current research indicates that effects of smoke on healthy individuals are short term.

Smoke from prescribed fire will have short term impacts on air quality in the area within and surrounding the river corridor. Recreationists may be negatively affected if they are present during burns. Visibility could diminish when smoke is in the air, which will affect the ability to see the scenery within the corridor.

Prescribed burns are likely to be implemented in the spring and late fall periods. Effects of smoke can be mitigated through burning at times when atmospheric conditions are such that the smoke is lifted into higher levels of the atmosphere, away from the surface, and is dissipated through mixing. Prescribed burning is performed in accordance with the State of Oregon Implementation Plan for Smoke Management and is in compliance with the Region 6 Vegetation Management Environmental Impact Statement and Mediated Agreement.

Cumulative Effects of All Alternatives on Fire

There are no known cumulative effects of adding smoke from prescribed fires into the atmosphere.

Cultural Resources

Activities that disturb the most ground have the greatest potential to affect cultural resources. Activities such as prescribed fire can affect cultural resources on the surface. Activities such as road and trail construction can affect cultural resources above and below the surface.

Cultural resource clearance must be secured before any ground disturbing activity begins. In some cases this will require an additional cultural resource survey.

All alternatives provide for interpretation of cultural resources within the corridor.

Alternative 1

Significant cultural resource sites would be avoided and protected during all management activities. If a site is located during an activity, work will cease until the site is evaluated and appropriate mitigation measures prescribed by the District and Forest archeologist.

This alternative has the greatest potential to have negative impacts on cultural resources. Timber harvest, road construction, campground construction, trail development and use, and other activities allowed in this alternative have the potential to disturb cultural resource sites.

Alternative 2

Buildings, corrals, and the bridge at the North Fork Cow Camp could be removed. Additional ethnographic information and site documentation will be required before eligibility to the National Register can be determined.

Road 1675-774, a historic road accessing Crane Creek Crossing (see Chapter 2), would be closed and other measures taken to mitigate disturbance in this alternative. Closing this road will have no adverse affect on this historic property, and may help to preserve it.

This alternative has the least potential for having negative effects on cultural resources as it allows the fewest ground disturbing activities.

Alternatives 3, 5, and 5

Measures would be taken to protect the historic road complex at Crane Creek Crossing. These alternatives have less potential to affect cultural resources than alternative 1 because it allows fewer roads to be constructed.

Recreation

The Forest Plan recommends a semi-primitive, non-motorized designation on the Recreation Opportunity Spectrum (ROS) for scenic river corridors. Some motorized travel is permitted.

Alternative 1

The existing recreation opportunity spectrum class for the northern part of the corridor is roaded natural. Because the number of dispersed camping sites would remain the same and no roads would be closed, interactions between users would be expected to increase through time, as more recreationists come to the area. The ROS class would continue to be roaded natural. The semi-primitive non-motorized ROS is not attainable for this part of the corridor.

The interaction would include conflicts between recreation visitors and grazing livestock. Disturbance from timber management and grazing would be more apparent to cross-country hikers.

Camping and grazing would increase trampled ground, livestock manure, fire rings, and river bank erosion. Fishing would increase because of improved access. Fishing regulations could become more restrictive, reducing the quality of the fishing experience for some people.

There would be a moderate increase in river-based recreation.

The reconstruction of North Fork Campground would move campsites out of the riparian area. However, this project would also compact soils and reduce vegetation on an additional acre of land in the campground within the 100 year floodplain. This project would increase the capacity for this campground from 25 to 50 people at a time (PAOTs).

Increased use of Crane Crossing Forest Camp would exacerbate conflict between campers and livestock. The capacity of Crane Creek would remain at 10 PAOTs.

More people who prefer developed camping sites and people with disabilities would use the reconstructed North Fork Campground and higher visitation would be reflected in foot traffic on trails.

The 12 miles of new trail and two new trailheads could increase sedimentation. A larger number of trail users would create additional dispersed camping sites and increase conflict between hikers, mountain bike riders, and livestock. Designation of a southern portion of the trail as part of the Desert Trail could additionally increase use.

Roads used during the fall hunting season would continue to erode and increase the risk of sediment reaching the river. An increase in the number of commercial vehicles would produce more dust, noise, and conflict with recreation vehicles.

Alternative 2

The effect of this alternative would be to keep the management direction for that portion of the corridor south of the North Fork Malheur River Trail to ROS class semi-primitive non-motorized, the existing condition. It would change the class to roaded natural north of the trail (which is the existing condition).

The reduction of access due to road closures would discourage dispersed camping, including that of big game hunters in the fall. The 26 dispersed campsites would be closed to camping. Sites which have become denuded will recover naturally, or through rehabilitation measures such as planting native vegetation and adding organic matter to the soil surface. The absence of livestock grazing and scheduled timber harvest will improve the experience of cross-country hikers.

Since Roads 13, 16 and 1675 would remain open, visits to the river by anglers would be essentially unchanged. Fewer total visitors, however, should improve the experience of fishermen who prefer quiet and solitude .

An indirect effect of road closures could be overuse at the North Fork Campground and Elk Creek (adjacent to the river corridor). Capacity of the North Fork Campground will remain at 25 PAOTs. Campers could be forced to use other dispersed areas and adjacent meadows could be adversely effected.

Use of the river itself could be negatively effected by an increase in large woody material, called for in Alternative 2. Road access to a major site for river use, the Crane Crossing Forest Camp, would be eliminated. This would reduce the capacity of this site from 10 to 0 PAOTs, though some walk in camping would probably continue.

Crowded conditions at the North Fork Campground could increase facility maintenance and replacement costs and result in the construction of illegal facilities.

The removal of signs and absence of maintenance would reduce the number of hikers on the North Fork Malheur Trail. The southern portion of this trail would not be designated a part of the Desert Trail.

Road closures would preclude use of the most of the corridor by people with disabilities. Closure of native surface roads would reduce the possibility of sediment reaching the river but additional surveillance may be required for enforcement.

Alternative 3

ROS classes would be the same as in Alternative 2. Dispersed recreation would increase about 10 percent over time as additional dispersed campsites are established.

Increased amounts of woody debris (logs in and across the river) could reduce the quality of a river experience for floaters and swimmers.

An additional campground and improvements to existing facilities and additional dispersed campsites would disperse user throughout the corridor. This would take some of the pressure of North Fork Campground during the hunting season. The exclusion of livestock from Crane Creek Forest Camp would permit the recovery of vegetation and improve the experience for campers.

An overall increase in the number of people using the corridor would reduce the experience of hikers and campers seeking solitude. Developed recreation capacity would increase from 25 to 50 PAOTs at the North Fork Campground and 50 PAOTs would be added with the construction of a new campground in the corridor. Crane Creek Forest Camp would be improved with a resulting increased capacity from 10 to 20 PAOTs.

The effects of the 12 miles of new trail construction would be the same as in Alternative 1. There would be an additional 2.5 miles of trail along Skagway Creek. New trailheads would disperse hikers along the entire length of the existing trail.

Motorized travel on a new trail north of Forest Road 1675 could create conflict with other recreationists such as hikers, campers, and people hunting and fishing. It would provide an additional recreation use of the corridor, motorized trail riding, and could substantially increase the amount of vehicular noise heard along the river and dust within the corridor.

Roads used primarily during hunting season would continue to erode and could increase sedimentation. While they are being used, temporary roads could permit additional impacts from dispersed camping.

Alternative 4

The ROS classes for this alternative would be semi-primitive, non-motorized south of the North Fork Malheur River Trail's north trailhead, and roaded natural north of this trailhead.

The rehabilitation or closure of dispersed camp sites that are creating resource damage would improve the corridor ecosystem but could force campers to find other sites, some of which may be unsuitable for camping. It is estimated that approximately 30 percent (6) of these camp sites would be closed. Overcrowded conditions could develop at the North Fork Campground and Elk Creek Campground, even though the North Fork Campground would be reconstructed and its capacity increased to 50 PAOTs.

Because of the 2.5 miles of new trail down Skagway Creek and new and reconstructed trailheads, hiking on the North Fork Malheur River Trail would increase, but fishing would be expected to stay about the same. Designation of the southern portion of the North Fork Malheur River Trail as part of the Desert Trail would attract additional hikers.

The closure or reconstruction of roads found to be causing resource damage would reduce the possibility of sedimentation into the river. These closed roads could be used by hikers, mountain bike riders, and horseback riders, providing additional recreational opportunities without significantly increasing the production of sediment.

Alternative 5

The effects of this alternative on recreation reflect its composite nature. It would provide for somewhat improved facilities which, providing user satisfaction, but would not increase the number or size of existing developments.

Alternative 5 was constructed of elements from other alternatives. ROS classes and effects on river recreation would be the same as in Alternative 3. Effects on dispersed recreation and camping would be the same as they are in Alternative 1, except that the capacity of the North Fork Campground would remain at 25 PAOTs.

The effects of access management would be the same as in Alternative 4 except that restrictions on grazing south of Crane Crossing Forest Camp will greatly reduce conflicts between livestock and recreation in that portion of the corridor.

Cumulative Effects of All Alternatives on Recreation

As roads in the general forest outside the river corridor are closed to achieve road density standards, more demand for camping within the corridor is expected.

Socio-Economic Effects

Socio-economic effects of the alternatives on local communities were evaluated using the following three criteria.

1. Timber and grazing related employment. This includes jobs in ranching, logging, wood products, and related forest work such as tree planting, fence construction, and prescribed burning.

2. Forest Service payments to Baker and Grant Counties. The Forest Service returns 25 percent of gross timber receipts and grazing fees to the counties where they are generated.

3. Recreational opportunities. Recreational opportunities for camping, fishing, hiking, viewing scenery, and other activities are an important part of the social environment.

Alternative 1

There would be no change in timber or grazing related employment. Payments to counties would be unchanged. Recreational opportunities would increase slightly.

Alternative 2

There would be no timber or grazing related employment and no payments to counties from timber receipts or grazing fees. Recreational opportunities would decrease slightly.

Alternative 3

There would be no change in timber or grazing related employment and payments to counties would remain the same. Recreational opportunities would increase slightly.

Alternative 4

There would be a slight decrease in timber and grazing related employment, payments to counties, and recreational opportunities.

Alternative 5

There would be a slight decrease in timber and grazing related employment. Payments to counties would decrease more than in Alternative 4. Recreational opportunities would remain about the same.

Wetlands and Floodplains

None of the alternatives will have significant adverse effects on floodplains and wetlands.

Other Required Disclosures

All alternatives meet all applicable national laws and executive orders with specific direction concerning Wild and Scenic Rivers, National Forest Land Management, and timber harvest. Subjects specifically included are cultural resources, water quality, visual quality objectives, timber regeneration periods, air quality, soil productivity, and threatened, endangered, and sensitive plant and animal species. None of the alternatives would have any significant adverse effects on these resources and activities.

For all alternatives, irreversible and irretrievable commitments of resources would not exceed those discussed in the Final Environmental Impact Statement for the Malheur National Forest Land and Resources Management Plan.

There are no prime farmlands within or adjacent to the river corridor. All alternatives are in keeping with the intent of Secretary of Agriculture Memorandum 1827 for prime rangeland, farmland, and forest land.

Until research resolves major scientific uncertainties, evaluation of effects of global climate change here would be speculative. The Department of Agriculture and Forest Service are conducting extensive research on global climate change and its implications for forest resource management activities. Current Forest Service policy holds that National Environmental Policy Act disclosure documents at the regional or project levels are not appropriate vehicles for addressing possible change in global climate.

American Indian rights, including those covered under the American Indian Religious Freedom Act, would not be affected by activities considered in this assessment. Socio-economic effects on American Indians, other minorities, and women would be the same as effects on the general population, discussed above.

Alternative 1 would comply with the Forest Plan. The implementation of any of the other alternatives would require an amendment to the Forest Plan.

Chapter Five

Comparison of Alternatives

To assist in the evaluation and comparison of alternatives, the following chart was prepared.

Comparison of Effects of Alternatives

** INDICATES OUTSTANDINGLY REMARKABLE VALUE

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
TIMBER HARVEST					
Acres available for harvest	3,280 acres (scheduled)	No Harvest (scheduled)	3,280 acres (scheduled)	2,952 acres (scheduled)	2,155 acres (Non-scheduled)
Scheduled harvest acres per decade (estimated)	820	0	820	738	0
Annual volume (ASQ in MBF) (estimated)	246	0	246	221	0 (non chargable volume only)
Annual timber reciepts to Counties (estimate is based on 5 yr. average stumpage of $336/MBF)	$20,664	0	$20,664	$18,564	Not calculated More than 2, less than 4
Harvest Rotation Length	250 years in forground 100 years in middleground.	NA	250 years	250 years	More than 250 yrs
Species composition, distribution, and abundance.	Potential for most rapid change to all age stands of PP. Conversion of most MC to PP and LP to MC	Changes will occur through natural processes. Gradual loss of many large trees within the corridor.	Same as 1	Slower change than 1 because fewer acres treated by harvest than 1 or 3	Similar response to management as 4 above Crane Creek. Same as 2 below below Crane Creek
Long and short term Ecosystem Management	Most Responsive in long term.	Least Responsive. Limited to natural processes and prescribed fire.	Very Responsive Responsive in Most responsive in short term, due to relaxed visual standards.	Similar to Alt 3, but less area may be available for treatment because more old growth management.	Moderately responsive above Crane Creek. Same as 2 below Crane Creek

	Alte ve 1	..lter...e 2	Alternative 3	Alternative 4	Alternative 5
GRAZING					
Area available for grazing	6,178 acres	0 acres	6,178 acres	6,178 acres	6,178 acres
Animal unit months (AUMS)	294 (Permitted use under existing term grazing permitts)	0	294	294	294
Riparian area forage condition Improvement Rate	Least Rapid	Most Rapid	Same as 1	Less than 2	Less than 4. Cattle preference for riparian shrubs during late season may preclude much actual permitted grazing during the post September period.
NF Cow Camp use by permittee	Continued Use	No use	Continued use with restrictions	Same as 3	Same as 3
Annual grazing receipts to counties	$143	$0	$143	$143	$143
Conflicts with Recreationists	Existing conflicts will continue	Existing conflicts eliminated	Existing conflicts will continue	Existing conflicts will be reduced	Most conflits eliminated
RECREATION					
Dispersed Camping	Continued Use at existing levels	Eliminated throughout corridor	Continued use at existing or higher levels	Restricted use Lower levels than Alt 1	Same as Alt 1
Developed sites within river corridor.	Reconstruction of NF Campground will result in higher visitor satisfaction. Increases capacity by 100%.	Same capacity. Increased demand for campsites in the campground will result in lower visitor satisfaction.	A new campground to be constructed and North Fork Campground will be reconstructed or relocated and expanded.	Same as Alt 1? Increased demand for campsites in the campgrounds will result in lower visitor satisfaction.	Same capacity as Alt.2, but with less demand for developed sites, and improvments to NF Campground resulting in higher visitor satisfaction than Alt 2.

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
RECREATION					
Trails	12 miles of new trail will provide additional recreation opportunity and access to the river. Potential for increased fishing pressure on sensitive species and decrease in water quality and more trampling to streambank vegetation	Access to river by limited to crosscountry travel. Less fishing pressure on sensitive species. Reduction in trail related impacts to water quality.	Same as Alt 1 in northern portion of corridor Better trail access to river in south part of river. Provides both motorized and non motorized trails.	Same as Alt 2 in northern portion of corridor. Same as 3 in south. Provides non motorized trail use only.	Same as Alt 4
Developed Campground and Forest Camp capacity PAOTs (People at one time)	50 NF Campground 10 Crane Creek 60 Total PAOT	25 NF Campground 0 Crane Creek 25 Total PAOT	50 NF Campground 20 Crane Creek 50 New Campground 120 Total PAOT	50 NF Campground 10 Crane Creek 60 Total PAOT	25 NF Campground 10 Crane Creek 35 Total PAOT
Dispersed Camp Sites	26+	0	29+ (Assumes 10% or more increase in total number of sites)	18 (Approximately 30% may need rehabilitation measures.)	26+
Recreation Experiences	Existing direction is to manage the river corridor as semi-primitive non-motorized, in a setting with few interactions with other visitors and high opportunity for solitude. With existing roads in the northern part of the corridor, this experience will not be provided.	This alternative manages the corridor to provide a semi-primitive non motorized experience in the south part, roaded natural in the north. Access to the south part will be by cross country travel only. Existing uses will decline & some dissatisfaction with returning recreationists, particularly some long time hunters, hikers & people who use the trail to fish will result. Other recreatinists will prefer more primitive setting and more pristine conditions	Additional recreation developments appeal to some recreationists. Others who prefer settings of a more primitive nature will likely be displaced, and go to other areas.	This alternative will result in improved facilities which are provided at about the same level as exists now. Recreation use levels will be slightly less than now. User satisfaction and preference for this area will remain high.	This alternative will essentially provide the same high quality recreational experiences as currently provided, but with slightly better road and trail access and minor improvements to the facilities at North Fork Campground and Crane Creek Forest Camp. User satisfaction is expected to be high. People seeking a more primitive experience will be less satisfied than in Alternative 2, but will be more satisfied than in Alternative 3.

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
New Trail Construction	12 miles	0 miles	14.5 miles	2.5 miles	2.5 miles
MINING ACTIVITIES	Mineral potential within the corridor in levels which are economically feasible for mining operations is low. If however mining activities were to occur, as allowed by all alternatives, mitigation of effects would not eliminate all potential effects to river values and resources.				
**VISUALS/SCENERY					
Landscape Alteration through management activities	Most noticable, especially in the middleground. Will result in the least natural appearing landscape.	Least noticable alterations to the landscape. Has the lowest potential to affect natural appearing landscapes.	Similar to alt 1 but less alteration in the middleground. Allows more visually apparent activities for rehabilitation & long term enhancement during the next few years. Will have long term positive effect but short term negative effect.	Similar effects as Alt 3, but 37% fewer acres will be affected by timber harvest because of old growth in this alternative. This will result in a more natural appearing landscape overall than Alt 3.	This alternative allows similar timber harvest activities as Alternatives 3 and 4 north of Crane Creek. South of Crane Creek effects will be the same as in alternative 2. Overall, this alternative will result in a more natural appearing landscape than alterantives 1,3, and 4 but less natural appearing than alternative 2.
Visual Quality Objectives	Forground Retention Middleground Partial retention	Preservation throughout the corridor	Retention throughout the corridor	Retention throughout the corridor	Retention above Crane Creek Preservation below Crane Creek
Scenic beauty protection	Provides moderate level of protection	Provides highest level of protection Effects of prescribed fire will be the only significant managemnt activity which affects scenic beauty.	Allows short term protection less than Alt 1 due to partial retention VQO in foreground for a period of time. Middleground areas will be protected more than Alt 1 in both short & long term. Overall this alternative allow a high level of protection, but less Alternative 2	Same as Alt 3	Same as Alt 1 above Crane Creek in forgrounds and better protection of middlegrounds than Alt 1. Below Crane Creek protection will be same as Alternative 2.

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
**WILDLIFE					
Old Growth management	875 acres	3,400 acres	875 acres	1,200 acres	2,000 acres
Riparian Habitat Improvement Rate	Recovery slower than Alt 2.	Fastest recovery of riparian vegetation	Same as Alt 1	Less rapid than Alternatives 2 and 5, more rapid than Alternatives 1 and 3.	Less rapid than Alternative 2. Faster rate than Alternatives 1 and 3.
Cavity excavator habitat	Will allow up to 40% less habitat than the potential.	Will maintain 100% of potential habitat	Same as Alternative 1.	Same as Alt 2.	Same as Alt 2.
Wildlife habitat protection	All alternatives provide for a high level of wildlife habitat protection. The effectiveness of the corridor to continue to provide connectivity between habitats on adjacent lands and to serve as a travel corridor will be maintained. There are some differences in the alternatives, however.				
	Provides for lowest level of protection of existing habitats	Provides for greatest level of existing habitats	Same as Alt 1	Less protection than Alt 2, but greater protection than Alts 1 and 3	Less protection than Alt 2 but greater than Alt 4.
Long term Wildlife habitat Enhancement Project Opportunities	Provides for unrestrictive opportunities	Opportunities are very restricted	Same as Alt 1	Fewer opportunities than Alt 1 due to more Old Growth management.	Less than Alt 3 because there is no harvest allowed south of Crane Creek.
**FISHERIES					
Habitat improvement recovery rate	Lowest Recovery rate	Most rapid improvement	Same as Alt. 1	Less rapid improvement than Alts 2 and 5 but more rapid than 1 and 3.	Less rapid improvement than alt 2. Faster rate of recovery than 1 and 3 but late season grazing may delay shading of stream in lower river.
Habitat protection	This alternative provides for the lowest level of protection of the alternatives, but still provides high quality habitat in the short term. Improved habitat conditions in the long term are through better grazing management & habitat improvement projects.	This alternative provides for the highest level of habitat protection.	Same as Alt 1	Slightly less protection than Alternative 2.	Same as Alternative 4.

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
WATER QUALITY	All alternatives will meet or exceed State Water Quality standards. All alternatives will maintain and protect the free flowing conditions of the river. Water quality will likely improve slightly more in alternatives which limit impacts from cattle and humans, but at levels too low to quantify. Implementation of any alternatives will provide improved conditions where existing impacts from grazing are severe. Water temperature will likely remain static, except be cooler in deeper pools which develop through time as the large woody debris component increases through time. Within 10 years, the predicted one degree increase in stream temperature which was a result of past wildfires within the watershed should recover to pre-fire temperatures. The nomination of the North Fork Malheur River to the State of Oregon as an Outstanding Resource Water is unnecessary. Existing water quality protective measures and guidelines for the watershed are provided in the Malheur National Forest Land and Resource Management Plan which will ensure high levels of water quality protection to continue in the future.				
CULTURAL RESOURCES	All alternatives provide high levels of protection for cultural resources. The alternatives allow for interpetation of historic properties such as the Creighton Road and the Dalles Military Road. Any activites affecting historic and pre-historic properties will conform with existing laws and regulations which direct the management of cultural resources.				
ROADS	Existing Roads Remain open	Closing access to Crane Creek and most dispersed sites will exclude some existing uses from the corridor while reducing some impacts to water quality.	Same as 1 and and allows some temporary roads for timber harvst	Closes some roads to existing dispersed campsites will displace some recreationists but provide better resource protection. No new roads for timber harvest will limit harvest methods, but have less impact to visuals and water quality.	No new road construction for recreation access or timber harvest will limit additional dispersed campsite development and harvest method. This will also reduce impacts to water quality.
**GEOLOGY	All alternatives provide for protection of the geology of the river corridor.				
AIR QUALITY/ SMOKE MANAGEMENT	Any prescribed burning will be conducted in compliance with the State of Oregon Implementation Plan for Smoke Management. No long term adverse affects from smoke production have been identified.				

Chapter Six

Desired Future Condition

In preparing this environmental assessment, planners were charged with reviewing the objectives of Wild and Scenic River management, the Desired Future Condition. This condition will differ, depending on the strategy selected for North Fork Malheur Scenic River management.

The description of alternatives below can be considered an extention through time of enivironmental consequences given in Chapter Four.

Alternative 1

Fisheries and Watershed

After 10 years:

A substantial amount of fisheries improvement work will have been accomplished.

After 50 years:

All riparian areas in less than desirable condition will have been improved to provide for all riparian dependent resources. Bank stability, water quality, fish habitat, recreation opportunities, and aesthetics will have all have improved.

Streamside vegetation will be more diverse and native species more abundant. Habitat capability for resident fish will have increased substantially.

Range Forage Conditions

After 10 years:

Modified grazing strategies on selected allotments will increase the rate of improvement in riparian vegetation. In some areas, this will be dramatic. Reduced utilization will also improve the condition of grasses and shrubs. Woody shrubs will be more prevalent. Forest Plan utilization standards for grasses and shrubs, 45 percent and 40 percent respectively, will be met.

After 50 years:

All allotments will include full utilization of forage available for livestock. Exterior boundary fences will be in place and adequately designed water developments installed. All grazing areas in the corridor will be in satisfactory or better condition.

Wildlife

After 10 years:

The North Fork Malheur Scenic River Corridor will provide travel routes for wildlife between old growth areas. Species which use riparian areas will be responding positively to improved riparian conditions. Prescribed burning, seeding, browse planting, pruning, mechanical disturbance, and fertilization has enhanced forage production. Other habitat improvement projects, aspen stand enhancement and riparian vegetative plantings, may have occurred.

Habitat for between 60 and 100 percent of the potential population of primary cavity excavators and nesters will be provided. Snags will be well distributed and green tree replacements will be provided to provide snags over time. There are viable populations of species that are candidates for listing as Threatened or Endangered.

The corridor will provide 875 acres of old growth type habitat in addition to the old growth habitat allocated to Management Area 13 in the Forest Plan.

After 50 years:

Big game forage quantity and quality will have improved and populations, reflecting this improvement, have slightly increased. Habitat to support between 60 and 100 percent of the potential population of cavity excavators will continue to be available. The beneficial effects of early habitat improvement projects will be experienced.

Recreation:

Semi-Primitive, Non-Motorized ROS

In 10 and 50 years:

Future generations will still experience the feeling of being in an area unaffected by development and disruptive activities. It will continue to be an area where one can enjoy the scenic beauty of a river corridor.

There will continue to be low to moderate evidence of other people in these natural or natural-appearing environments. Motorized recreation is not permitted but there are roads that are used for other management activities.

Dispersed campsites are located to take advantage of topographic and vegetative screening and interactions between campsites are infrequent. Opportunities for experiencing solitude, independence and closeness to nature are good and encounters with others on the trail system with other users will be rare.

There are on-site controls and restrictions but they are subtle. Contact with administrators will be infrequent. Facilities, such as Crane Crossing Forest Camp and trailheads, will be managed to the standards of the semi-primitive, motorized ROS class. Native, rustic materials will be used for signing and sanitary and safety facilities.

THIS IS AN UNATTAINABLE DFC IN THE AREA NORTH OF THE NORTH TRAILHEAD

BECAUSE OF THE FOREST SYSTEM ROADS IN THIS AREA AND THE SHORT DISTANCE BETWEEN THE ROADS AND THE RIVER. WITHOUT CLOSING ROAD 16 AND 13 AND CONNECTOR ROADS, IT WOULD NEVER BE ATTAINED.

Fire and Fuels

In 10 and 50 years:

Prescribed fire will have played a role in converting stands of mixed conifer back to ponderosa pine in the river corridor. Most of this pine will have been underburned. This will forestall encroachment by fir.

Ground fuels will be reduced significantly, resulting in increased forage for livestock and big game. Total smoke production on an annual basis will be reduced substantially because wildfires are less intense.

Prescribed fire from natural ignitions may be used to allow fire to play its natural ecological role.

Silviculture and Timber Management

There is no specific desired future condition in the Forest Plan for silviculture and timber management in wild and scenic river corridors.

Scenery

After 10 years:

The appearance of the scenic river corridor will be natural or near natural. Alterations in the landscape are not evident in visual foregrounds but are obvious in middlegrounds. Even here, however, alterations follow the form and natural character of the landscape.

After 50 years:

Visitors will experience the feeling of being in an area unaffected by development activities. Large diameter ponderosa pine abound within the corridor. Only subtle changes in the appearance of the landscape will be noticeable.

Alternative 2

Fisheries and Watershed

In 10 years:

Populations of bull trout, redband trout, whitefish, and all native non-game species will be maintained or increased.

Management generated pollutants such as sediment, bacterial contaminants, and turbidity have been reduced. Spawning habitat for trout populations will be continue to be provided at existing levels.

An increase in the amount of in-channel large woody debris provides more structural habitat diversity for resident fish, especially trout. Large pool, scour pool, and pocket pool habitat has been maintained or increased throughout the corridor.

Water diversions for irrigation or other uses have been eliminated or properly screened to prevent loss of fish. The amount and timing of water withdrawals is regularly monitored to assure compliance with the water right.

In 50 years:

The distribution of bull trout is now throughout the river.

Increased streamside vegetation, both grasses and hardwoods has produced 90 percent streambank stability and 90 percent of the site potential for stream surface shade. This has decreased water temperature during the low flow summer period and icing during the winter. Undercut banks are more stable and the increase in overhanging vegetative cover has improved fish habitat.

The long term goals of managing fish habitat which provides for a naturally functioning river and riparian system, with high quality water and structurally diverse habitat, will be met.

In-channel large woody debris varies by river segment, based on size and power of the river and potential recruitment of wood to the channel. Below Crane Creek there has been a 100 percent increase, from 23 pieces to about 50 pieces per mile. Above Crane Creek to Forest Road 1370 there has been a 50 percent gain, from 72 to 100 pieces per mile. Above Road

1370 the current 130 pieces per mile has been maintained. Large pool habitat has increased by the same percentages.

Range Forage Conditions

In 10 years:

The exclusion of livestock has produced a broader mix of successional species and plant communities now represent later seral stages.

Overall plant vigor has increased. In some riparian areas where vegetation has been suppressed by the increase in shade from alder, willow, and dogwood, the condition of forage has declined. Deposits of sediments trapped as streamside vegetation recovers has contributed to this decline to some extent.

Utilization standards of 45 percent for grasses and grass like plants and 40 percent on shrubs are being met by wildlife, whose populations are within the carrying capacity.

There is no conflict between recreationists and cattle.

In 50 years:

The broad mix of successional species dominance of late seral ecological communities continues. There is sustained production of both palatable and non-palatable species from these communities for grazing by wildlife and soil retention.

Riparian vegetation is in satisfactory condition and at near site potential for the late seral ecological plant communities represented.

Wildlife utilization standards of 45 percent of grasses and grass like plants and 40 percent on shrubs are being met.

There is no conflict between recreationists and cattle.

Wildlife

In 10 and 50 years:

The corridor will continue to provide exceptional wildlife habitat for a great many species. This is attributable to the low level of management activity compared with surrounding areas.

The corridor provides connectivity between the Great Basin and Blue Mountain physiographic provinces. It is used as a major travel route by many wildlife species and provides an avenue for genetic dispersal, which increases sustainability. Management for biological diversity has maintained horizontal and vertical structure perpetuating a wide variety of habitat types.

Habitat has been protected and enhanced for the many species inhabiting the river corridor. Potential habitat for sensitive, proposed, threatened or endangered species will continue to be provided.

There is old-growth type habitat in the corridor in addition to that which the Forest Plan reserved in the Management Area 13 (Old Growth) allocation. Most timber land in the corridor, 3,400 acres, has been managed to sustain or develop old growth characteristics.

There are 8 to 15 trees 21 inches in diameter at breast height (dbh) or larger per acre. On the ground there are two to five logs per acre at least 10 inches in diameter and 12 feet long. Multiple canopied stands provide vertical diversity simulating unevenaged conditions.

Riparian habitats are in satisfactory condition. Riparian vegetation composition will be more characteristic of the potential vegetation of the sites. Generally, hardwood species are more dominant; trees and shrubs provide additional canopies in the riparian zones.

Non-forested areas are generally unchanged in appearance; they are occupied by grasses,

forbs, and shrubs. Mountain browse species such as bitterbrush, mountain mahogany, and serviceberry are significant components on sites which support them.

There is habitat provided which meets 100 percent of the potential population levels of cavity excavating and cavity nesting birds.

Where permitted by site potential, cover for big game is optimum. It includes a high proportion of satisfactory cover to marginal cover. Hiding cover is abundant and big game forage is available in areas where early seral conditions are present and the regeneration of trees is occurring.

Populations of wildlife are generally unchanged from the existing, but there will be some small increases in passerine birds and other riparian associated species.

Recreation

Roaded Natural ROS Class

In 10 and 50 years:

People are continuing to derive satisfaction from visits to a relatively remote river corridor where natural conditions have been only slightly altered by management activities. Visitors continue to enjoy the scenic beauty of the river corridor.

North of the North Fork Malheur River Trailhead, there is moderate evidence of human activities and structures. Roads, and motorized vehicles are common in the area. Campsites, some which are heavily used, are numerous. The opportunity to experience solitude by camping out of the sight and sound of other parties is moderate except during hunting season.

Campground development provides a moderate level of comfort and convenience for visitors. Signing and public education programs enhance the experiences of visitors and provide for better resource protection. Management presence and regulations will affect visitor behavior.

Semi-Primitive, Non-Motorized ROS

In 10 and 50 years:

That portion of the corridor south of the North Fork Trailhead provides a river setting where future generations still experience a feeling of being in an area unaffected by management activities. Scenic beauty continues to be enjoyed in natural and and natural appearing settings.

Visitors encounter little evidence of other users. Topographic and vegetative screening have been used to separate dispersed campsites. Opporunities for solitude and a feeling of independence and closeness to nature are high.

On-site controls and restrictions are subtle. Contact with administrators is infrequent. Forest camps are located outside the corridor. Because of an absence of maintenance, the North Fork Malheur River Trail has declined and travel within this portion of the corridor more difficult. Access is limited to foot and horseback travel.

Fire and Fuels

In 10 years:

Prescribed burning to enhance scenic values and improve wildlife habitat has reduced fuel loadings.

In 50 years:

The condition of fuels in the corridor is such that ignitions do not produce flames higher than 4 feet, which allows direct attack by crews. These profiles are maintained: in stands dominated by ponderosa pine, 8-PP-4; in mixed conifer stands,

2-MC-2; and in lodgepole pine stands, 3-LP-3. The table below describes these profiles.

Fuel Profile Name	Tons per acre 0-3 inch	Tons per acre 3-20+ inch	Average Depth
8-PP-4	4.5 tons/ac	44 tons/ac	.2 feet
2-MC-2	4.8 tons/ac	6.0 tons/ac	.7 feet
3-LP-3	4.7 tons/ac	18.3 tons/ac	.3 feet

An average of two to five logs per acre, 12 feet long and 10 in diameter at the small end, have been left on the ground and contribute wildlife habitat. The fuel profiles listed above include these fuels scattered on the ground.

Natural and activity generated fuels have been treated to less than 6 tons/acre of fuels within 200 feet of developed and dispersed recreation sites. When necessary, slash has been hand piled and burned to achieve this desired fuel loading.

Prescribed fire has been used to improve wildlife habitat and enhance visual quality, primarily in areas where fire has historically been part of the ecosystem. This has reduced fuel loadings and re-established the species composition which existed prior to the fire suppression era. Wildfire may now play a more natural role in the river corridor ecosystems.

Silviculture/Timber

North Segment of Corridor affected by Big Cow Fire

In 10 and 50 years:

The dense stands of lodgepole pine have been replaced by a mixture of size classes and small openings; the landscape has a textured appearance. Where site conditions allow, other species have become established. Natural regeneration has produced a more diverse mixture of seral species such as Douglas-fir and white fir.

Lodgepole pine is still the dominant species in this portion of the corridor. Where the killing of trees by mountain pine beetles has become more extensive, prescribed fire has perpetuated lodgepole pine on these sites.

Mixed Conifer, Douglas-fir and Ponderosa Pine Associations.

In 10 years:

The general ecological condition of these stands is more stable, moving toward conditions which prevailed prior to the suppression of fires.

In 50 years:

These stands have achieved an even more stable ecological condition, similar to that found by the early European settlers. On some sites, frequent low intensity fires control encroachment by shade tolerant, climax species such as white fir.

Seral species such as ponderosa pine and western larch have become established on some sites now occupied by climax species. Large diameter ponderosa pine now dominate the overstory in this portion of the corridor. These stands have an open, park-like appearance with pinegrass/sedge the dominant vegetation in most understories.

In areas where existing stand conditions and adverse fire affects precluded the use of prescribed fire, the absence of timber management resulted in the loss of some overstory and understory trees through time.

Scenery

In 10 years:

Visitors continue to encounter large diameter trees, some multistoried forests, and grasslands bisected by the shrub lined, clear flowing waters of the North Fork Malheur River.

The visually sensitive corridor appears natural. There is less uniformity and evenness; and a courser texture is provided in areas with dead trees.

In 50 years:

A naturally appearing mosaic of vegetation with varying textures and small openings that have been created through the natural cycle of growth, death, and disturbance greets viewers.

The health and vigor of timber stands has been maintained with prescribed fire. Visual fire effects such as charred logs and the bark of trees is evident in some places.

Fish and wildlife habitat improvement projects and recreation developments have altered the appearance of a few sites but these changes are subordinate to the landscape.

Ponderosa pine is still the dominant overstory tree species within the corridor. Large diameter ponderosa pine are common but less common than in the past. A mixture of firs, or lodgepole pine are dominant on some sites.

Alterative 3

Fisheries and Watershed

In 10 years:

There has been a reduction in sediments, bacterial contaminants, and turbidity generated by management activities. Spawning habitat for trout populations has been maintained.

Increased streamside vegetation, both grasses and grass-like plants and hardwoods, have improved both streambank stability and shading. An increase in the in-channel large woody debris has improved habitat diversity for resident fish, especially trout. Large pool, scour pool, and pocket pool habitat will be maintained or increased throughout the corridor.

In 50 years:

Populations of redband trout, whitefish, and all native non-game species have been maintained or increased. Bull trout are now found throughout the designated scenic river. Water quality is high and fish habitat is structurally diverse in this naturally functioning river and riparian system.

There has been a reduction in sediments, bacterial contaminants, and turbidity generated by management activities. Spawning habitat for trout populations has been maintained.

An increase in the in-channel large woody debris has improved habitat diversity for resident fish, especially trout. Below Crane Creek, an average of 23 pieces of large woody material has increased to about 50 pieces, a 100 percent increase. From Crane Creek To Road 1370, a 50 percent increase, from 72 to 100 pieces per mile has been realized. Above this road the amount of material has remained the same, about 130 pieces per mile. Large pool habitat will have increased by the same percentages.

Increased streamside vegetation, both grasses and grass like plants and hardwoods, have increased both streambank stability and shading. 90 percent of stream banks are stable and stream surface shade along the stream margins is 90 percent of the potential. This has decreased water temperature during the low flow summer period and icing during the winter. It has also improved the stability of undercut banks and produced more overhanging vegetative cover.

Irrigation and other water diversions have been eliminated or properly screened to prevent loss of fish. The amount and timing of the diversions are monitored to assure compliance with the water right.

Range Forage Condition

In 10 years:

Successional species are more broadly mixed; plant communities are more representative of late seral ecological communities. Overall plant vigor has increased but forage conditions have declined in some riparian areas where forage plants are suppressed by shade from alder, willow, and dogwood and deposits of sediments.

Livestock grazing meets the Forest Plan utilization levels, 45 percent on the grasses and grass-like plants and 40 percent on the shrubs.

In 50 years:

The mix of successional species remains broad and late seral ecological communities are even more in evidence. Sustained production of both palatable and non-palatable species is available for grazing by livestock and dependent wildlife. Riparian vegetation is in satisfactory condition and is close to site potential; streambank soils are being effectively retained.

There are still conflicts between cattle and recreation but they are fewer. This is attributable to better cattle management. Dusty trails, manure and other evidence of cattle use in campsites, and direct encounters with livestock are still problems but are not as severe as in the past.

Grazing utilization meets Forest Plan standards.

Wildlife

In both 10 and 50 years:

Exceptional wildlife habitat is available for a great many species. Management activity has occurred at a lower level than on adjacent lands.

The corridor provides connectivity between the Great Basin and Blue Mountain physiographic provinces and is used as a major travel route by many wildlife species. This facilitates the genetic dispersal which sustains these populations.

Horizontal and vertical differences in vegetative structure accommodates different habitat types and promotes biological diversity. Wildlife habitat for the many species has been protected and enhanced. Habitat for sensitive, proposed, threatened or endangered species is available.

In addition to old-growth habitat allocated to Management Area 13 by the Forest Plan, 875 acres are being managed to protect or develop old growth characteristics within the corridor. There is an average of 8 to 15 standing trees 21 inches in diameter at breast height (DBH) and two to five large down logs per acre. Multiple canopied stands simulate unevenaged conditions and provide within stand vertical diversity.

Riparian habitats approximate the natural potential of each site. Hardwood trees and shrubs are common, providing additional layers of canopy.

The variety of grasses, forbs, shrubs, and trees in unforested areas is more representative of a potential natural community. Mountain browse species such as bitterbrush, mountain mahogany and serviceberry are significant components on sites which can support them.

Enough habitat for between 60 and 100 percent of the potential populations of cavity

excavating and nesting birds is available throughout the corridor.

Where permitted by site potential, cover for big game is optimum. It includes a high proportion of satisfactory cover to marginal cover. Hiding cover is abundant and big game forage is available in areas where early seral conditions are present and the regeneration of trees is occurring.

Populations of wildlife are generally unchanged from the existing, but there will be some small increases in passerine birds and other riparian dependant species.

Recreation

Roaded Natural ROS

In 10 and 50 years:

People are continuing to derive satisfaction from visits to a relatively remote river corridor where natural conditions have been only slightly altered by management activities. Visitors continue to enjoy the scenic beauty of the river corridor.

North of the existing North Fork Malheur River Trailhead, there is moderate evidence of human activities and structures. Roads, and motorized vehicles are common in the area. The 12 new miles of trail are used by both motorized vehicles, hikers, and horseback riders. There is a moderate level of trail user conflict. Campsites, some which are heavily used, are numerous. The opportunity to experience solitude by camping out of the sight and sound of other parties is moderate except during hunting season when it is low.

Campground development provides a moderate level of comfort and convenience for visitors. The new campground provides reduces demand for camping at the North Fork Campground. Signing and public education programs enhance the experiences of visitors and provide for better resource protection. Management presence and regulations affect visitor behavior.

Semi-Primitive, Non-Motorized ROS

In 10 and 50 years:

That portion of the corridor south of the North Fork Trailhead provides a river setting where future generations still experience a feeling of being in an area unaffected by management activities. Scenic beauty continues to be enjoyed in natural and and natural appearing settings.

Visitors encounter little evidence of other users. Topographic and vegetative screening have been used to separate dispersed campsites. Opporunities for solitude and a feeling of independence and closeness to nature are high.

On-site controls and restrictions are subtle. Contact with administrators is infrequent. Facilities such as Crane Creek Forest Camp and trailheads are managed for ROS semi-primitive motorized experiences. Facilities will be constructed of native and rustic like materials.

The origional North Fork Malheur River Trail is managed for foot, mountain bike and horseback travel. Access to this trail is improved, with the new access trail down Skagway Creek.

Fire and Fuels

After 10 years:

Fuel loadings have been reduced. Prescribed burning has enhanced scenic values and wildlife habitat.

After 50 years:

The condition of fuels in the corridor is such that ignitions do not produce flames higher than 4

feet, which allows direct attack by crews. These profiles are maintained: in stands dominated by ponderosa pine, 8-PP-4; in mixed conifer stands, 2-MC-2; and in lodgepole pine stands, 3-LP-3. The table below describes these profiles.

Fuel Profile Name	Tons per acre 0-3 inch	Tons per acre 3-20+ inch	Average Depth
8-PP-4	4.5 tons/ac	44 tons/ac	.2 feet
2-MC-2	4.8 tons/ac	6.0 tons/ac	.7 feet
3-LP-3	4.7 tons/ac	18.3 tons/ac	.3 feet

An average of two to five logs per acre, 12 feet long and 10 in diameter at the small end, have been left scattered on the ground and contribute wildlife habitat. The fuel profiles listed above include this material.

There are less than 6 tons/acre of fuels within 200 feet of developed and dispersed recreation sites. When necessary, slash has been hand piled and burned to achieve this desired fuel loading.

Prescribed fire has been used to improve wildlife habitat and enhance visual quality, primarily in areas where fire has historically been part of the ecosystem. This has reduced fuel loadings and re-established the species composition which existed prior to the fire suppression era. Wildfire now plays a more natural role in river corridor ecosystems.

Silviculture/Timber

North Segment of the Corridor affected by the Big Cow Fire

In 10 years:

Portions of this area have been treated to reduce the depredations of mountain pine beetle.

In 50 years:

On sites occupied by lodgepole pine there is a mixture of stand densities, size classes, and small openings which lend a textured appearance to the landscape. Where site conditions permit, a more diverse mixture of seral species such as western larch, and Douglas-fir have become established. Large diameter pine trees occupy potential sites but lodgepole is still dominant in this portion of the corridor.

Mixed Conifer, Douglas-fir and Ponderosa Pine Associations

After 10 years:

Ecological conditions are more stable than they were during the period of fire suppression. Frequent low intensity fires have controlled encroachment by shade tolerant, climax species such as white fir. Because of bark characteristics, seral species such as ponderosa pine and western larch which regenerate after underburns are common. Large diameter ponderosa pine are more dominate in the overstory of stands within the corridor. Stands have an open, park-like appearance with pinegrass/sedge the dominant vegetation in most understories.

After 50 years:

Stands in the corridor are in more stable ecological conditions such as found before the fire suppression era. Establishment of seral species such as ponderosa pine and western larch were favored by underburns. Frequent, low intensity fires have controlled encroachment by shade intolerant, climax species such as white fir. Large diameter ponderosa pine dominate the overstory of some stands in this portion of the corridor. These stands have an open, park-like appearance with pinegrass/sedge as the dominant vegetation in most understories.

Where stand conditions and adverse fire effects have precluded prescribed fire, pre-

existing undisturbed conditions were maintained. The absence of timber management has resulted in the loss of some overstory and understory trees.

Scenery

In 10 years:

Visitors see large diameter trees, some multistoried stands, and grasslands bisected by the shrub lined, clear flowing waters of the North Fork Malheur Scenic River.

The corridor has a natural or near natural appearance. Where timber harvest has occurred, trees are in clumps, groups, or naturally spaced; skid roads and temporary roads are not be evident after activities cease. Stumps have been flush cut or cut low to the ground where trees have been removed.

In the southern section of the corridor, alterations in the landscape are not visually evident. Activities in the northern section were conducted to be subordinate to the natural landscape, but minor changes are apparent.

In 50 years:

Overall, the landscape is a naturally appearing mosaic of varying textures and small openings created through the natural cycle of growth and disturbance. Disturbance has been natural, wildfire and insect/disease activity, or man made such as, timber harvest, prescribed fire, fish and wildlife projects, and recreation developments.

Ponderosa pine is the dominant overstory tree species and large diameter pine is common throughout the river corridor. On some sites, a mixture of firs or lodgepole is dominant.

There is a least one juniper tree per acre on shrub/grassland sites. The effects of prescribed fire are common and evident but short lived; this activity stimulates the growth of native grasses and wildflowers.

Alternative 4

Fisheries and Watershed

In 10 years:

There has been a reduction in sediments, bacterial contaminants, and turbidity generated by management activities. Spawning habitat for trout populations has been maintained.

Increased streamside vegetation, both grasses and grass like plants and hardwoods, have increased both streambank stability and shading. An increase in the in-channel large woody debris has improved habitat diversity for resident fish, especially trout. Large pool, scour pool, and pocket pool habitat will be maintained or increase throughout the corridor.

In 50 years:

Populations of redband trout, whitefish, and all native non-game species have been maintained or increased. Bull trout are now found throughout the designated scenic river. Water quality is high and fish habitat is structurally diverse in this naturally functioning river and riparian system.

There has been a reduction in sediments, bacterial contaminants, and turbidity generated by management activities. Spawning habitat for trout populations has been maintained

Increased streamside vegetation, both grasses and grass like plants and hardwoods, have increased both streambank stability and shading. Ninety percent of the streambanks are stable and stream surface shade along the stream margins is 90 percent of potential. This has decreased water temperature during the low flow summer period and decreased icing during the winter. It has also improved the stability of undercut banks and produced more overhanging vegetative cover.

An increase in the in-channel large woody debris has improved habitat diversity for resident fish, especially trout. Below Crane Creek, an average of 23 pieces of large woody material has increased to about 50 pieces, a 100 percent increase. From Crane Creek To Road 1370, a 50 percent increase, from 72 to 100 pieces per mile has been realized. Above this road the amount of material has remained the same, about 130 pieces per mile. Large pool habitat will have increased by the same percentages.

Irrigation and other water diversions have been eliminated or properly screened to prevent loss of fish. The amount and timing of the diversions are monitored to assure compliance with the water right.

Range Forage Conditions

In 10 years:

Successional species are more broadly mixed; plant communities represent later seral ecological communities. Overall plant vigor has increased but forage conditions have declined where forage plants are suppressed by shade from as alder, willow, and dogwood and deposits of sediments within the river riparian zone.

Livestock grazing complies with Forest Plan utilization levels. On areas in satisfactory condition which are grazed with extensive systems, of 45 percent of the grasses and grass-like plants and 40 percent of the shrubs have been met. Where intensive systems have been approved through allotment management plans and used, the 50 percent level for grasses and grass like plants and shrubs has been met.

After 50 years:

The broad mix of successional species remains and late seral ecological communities are even more in evidence. The sustained production of both palatable and non-palatable species is available for grazing by livestock and dependent wildlife and provides for soil retention. Riparian vegetation is in satisfactory condition and close to site potential for the late seral ecological communities represented.

There are still conflicts between cattle and recreation but they are fewer. This is attributable to better compliance with grazing utilization standards. Recreationists still encounter dusty trails, manure in campsites, and the physical presence of livestock, but in gerneral, cattle presence in the riparian zone is less than in past.

Wildlife

In 10 and 50 years:

Exceptional wildlife habitat is available for a great many species. Management activity has occurred at a lower level than on adjacent lands.

The corridor provides connectivity between the Great Basin and Blue Mountain physiographic provinces and is used as a major travel route by many wildlife species. This facilitates the genetic dispersal which sustains these populations.

Horizontal and vertical differences in vegetative structure accommodates different habitat types and promotes biological diversity. Wildlife habitat for many species has been protected and enhanced. Habitat for sensitive, proposed, threatened or endangered species is available.

In addition to old-growth habitat allocated to Management Area 13 by the Forest Plan, 1,200 acres are being managed to protect or develop old growth characteristics within the corridor. There is an average of 8 to 15 standing trees 21 inches DBH and two to five large down logs per acre. Multiple canopied stands simulate unevenaged conditions and provide within stand vertical diversity.

Riparian habitats approximate the natural potential of each site. Hardwood trees and shrubs are common, providing additional layers of canopy.

The variety of grasses, forbs, shrubs, and trees in unforested areas is more representative of the potential natural community. Mountain browse species such as bitterbrush, mountain mahogany and serviceberry are significant components on sites which can support them.

Enough habitat for 100 percent of the potential populations of primary cavity excavating and nesting birds is available throughout the corridor.

Where permitted by site potential, cover for big game is optimum. It includes a high proportion of satisfactory cover to marginal cover. Hiding cover is abundant and big game forage is available in areas where early seral conditions are present and the regeneration of trees is occurring.

Populations of wildlife are generally unchanged from the existing, but there will be some small increases in passerine birds and other riparian dependant species.

Recreation

Roaded Natural ROS Areas

In 10 and 50 years:

People are continuing to derive satisfaction from visits to a relatively remote river corridor where natural conditions have been only slightly altered by management activities. Visitors will continue to enjoy the scenic beauty of the river corridor.

North of the North Fork Malheur River Trailhead, there is moderate evidence of human activities and structures. Roads, and motorized vehicles are common in the area. Campsites, some which are heavily used, are numerous. The opportunity to experience solitude by camping out of the sight and sound of other parties is moderate except during hunting season.

Campground development provides a moderate level of comfort and convenience for visitors. Signing and public education programs enhance the experiences of visitors and provide for better resource protection. Management presence and regulations will affect visitor behavior.

Semi-Primitive, Non-Motorized ROS

In 10 and 50 years:

That portion of the corridor south of the North Fork Trailhead provides a river setting where future generations still experience a feeling of being in an area unaffected by management activities. Scenic beauty continues to be enjoyed in natural and and natural appearing settings.

Visitors encounter little evidence of other users. Topographic and vegetative screening have been used to separate dispersed campsites. Opporunities for solitude and a feeling of independence and closeness to nature are high.

On-site controls and restrictions are subtle. Contact with administrators is infrequent. Facilities such as Crane Creek Forest Camp and trailheads are managed for ROS semi-primitive motorized experiences. Falicities will be constructed of native and rustic like materials.

The North Fork Malheur River Trail is managed for foot, mountain bike and horseback travel.

Fire and Fuels

After 10 years:

Fuel loadings have been reduced. Prescribed burning has enhanced scenic values and wildlife habitat.

After 50 years:

The condition of fuels in the corridor is such that ignitions do not produce flames higher than 4 feet, which allows direct attack by crews. These profiles are maintained: in stands dominated by ponderosa pine, 8-PP-4; in mixed conifer stands, 2-MC-2; and in lodgepole pine stands, 3-LP-3. The table below describes these profiles.

Fuel Profile Name	Tons per acre 0-3 inch	Tons per acre 3-20+ inch	Average Depth
8-PP-4	4.5 tons/ac	44 tons/ac	.2 feet
2-MC-2	4.8 tons/ac	6.0 tons/ac	.7 feet
3-LP-3	4.7 tons/ac	18.3 tons/ac	.3 feet

An average of two to five logs per acre, 12 feet long and 10 in diameter at the small end, have been left on the ground and contribute wildlife habitat. The fuel profiles listed above include this material.

There are less than 6 tons/acre of fuels within 200 feet of developed and dispersed recreation sites. When necessary, slash has been hand piled and burned to achieve this desired fuel loading.

Prescribed fire has been used to improve wildlife habitat and enhance visual quality, primarily in areas where fire has historically been part of the ecosystem. This has reduced fuel loadings and re-established the species composition which existed prior to the fire suppression era. Wildfire may play a more natural role in river corridor ecosystems.

Silviculture/Timber

North Segment of the Corridor affected by the Big Cow Fire

In 10 years:

Portions of this area have been treated to reduce the depredations of mountain pine beetle.

In 50 years:

On sites occupied by lodgepole pine there is a mixture of stand densities, size classes, and small openings which lend a textured appearance to the landscape. Where site conditions permit, a more diverse mixture of seral species such as western larch, and Douglas-fir have become established. Large diameter pine trees occupy favored sites but lodgepole is still dominant in this portion of the corridor.

Mixed Conifer, Douglas-fir and Ponderosa Pine Associations

After 10 years:

Ecological conditions are more stable than they were during the period of fire suppression. Frequent low intensity fires have controlled encroachment by shade tolerant, climax species such as white fir. Because of bark characteristics, seral species such as ponderosa pine and western larch which flourish after underburns are common. Large diameter ponderosa pine are more dominate in the overstory of stands within the corridor. Stands have an open, park-like appearance with pinegrass/sedge the dominant vegetation in most understories.

After 50 years:

Stands in the corridor are in more stable ecological conditions such as found before the fire suppression era. Establishment of seral species such as ponderosa pine and western larch were favored by underburns. Frequent, low

intensity fires have controlled encroachment by shade intolerant, climax species such as white fir. Large diameter ponderosa pine dominate the overstory of some stands in this portion of the corridor. These stands have an open, park-like appearance with pinegrass/sedge as the dominant vegetation in most understories.

Where stand conditions and adverse fire effects have precluded prescribed fire, pre-existing undisturbed conditions were maintained. The absence of timber management has resulted in the loss of some overstory and understory trees.

Scenery

In 10 years:

Visitors see large diameter trees, some multistoried forests, and grasslands bisected by the shrub lined, clear flowing waters of the North Fork Malheur Scenic River.

The corridor has a natural or near natural appearance. Where timber harvest has occurred, trees are in clumps, groups, or naturally spaced; skid roads and temporary roads are evident after activities cease. Stumps have been flush cut or cut low to the ground.

In the southern section, alterations in the landscape are not visually evident. Minor changes are apparent in the northern portion of the corridor, but activities are subordinate to the character of the natural landscape.

In 50 years:

Overall, the landscape is a naturally appearing mosaic of varying textures and small openings. A periodic cycle of growth and disturbance maintains stand health and vigor. Disturbance has been natural such as, wildfire and insect/disease activity, or man caused such as, timber harvest, prescribed fire, fish and wildlife projects, and recreation developments.

Ponderosa pine is the dominant overstory tree species and large diameter pine is common throughout the river corridor. On some sites, a mixture of firs or lodgepole is dominant.

There remains at least one juniper tree per acre on shrub/grassland sites. The effects of burning are evident but short lived; this activity stimulates the growth of native grasses and wildflowers.

Alternative 5

Fisheries and Watershed

In 10 years:

There has been a reduction in sediments, bacterial contaminants, and turbidity generated by management activities. Spawning habitat for trout populations has been maintained.

Increased streamside vegetation, both grasses and grass like plants and hardwoods, have increased both streambank stability and shading. An increase in the in-channel large woody debris has improved habitat diversity for resident fish, especially trout. Large pool, scour pool, and pocket pool habitat will be maintained or increased throughout the corridor.

In 50 years:

Populations of redband trout, whitefish, and all native non-game species have been maintained or increased. Bull trout are now found throughout the designated scenic river. Water quality is high and fish habitat is structurally diverse in this naturally functioning river and riparian system.

There has been a reduction in sediments, bacterial contaminants, and turbidity generated by management activities. Spawning habitat for trout populations has been maintained.

An increase in the in-channel large woody debris has improved habitat diversity for resident fish, especially trout. Below Crane Creek, an average of 23 pieces of large woody material has increased to about 50 pieces, a 100 percent increase. From Crane Creek To Road 1370, a 50 percent increase, from 72 to 100 pieces per mile has been realized. Above this road the amount of material has remained the same, about 130 pieces per mile. Large pool habitat will have increased by the same percentages.

Increased streamside vegetation, both grasses and grass like plants and hardwoods, have increased both streambank stability and shading. 90 percent of stream banks are stable and stream surface shade along the stream margins is 90 percent of the potential. This has decreased water temperature during the low flow summer period and icing during the winter. It has also improved the stability of undercut banks and produced more overhanging vegetative cover.

Irrigation and other water diversions have been eliminated or properly screened to prevent loss of fish. The amount and timing of the diversions are monitored to assure compliance with the water right.

Range Forage Conditions

In 10 years:

Successional species are more broadly mixed; plant communities are more representative of late seral ecological communities. Overall plant vigor has increased but forage conditions have declined in some riparian areas where forage plants are suppressed by shade from as alder, willow, and dogwood and deposits of sediments.

Livestock grazing meets the Forest Plan utilization levels, 45 percent on the grasses and grass-like plants and 40 percent on the shrubs.

In 50 years:

The mix of successional species remains broad and late seral ecological communities are even more in evidence. Sustained production of both palatable and non-palatable species is available for grazing by livestock and dependent wildlife and serves to reduce erosion by retaining soil on site. Riparian vegetation is in satisfactory condition and close to site potential.

There are still conflicts between cattle and recreation but they are fewer. This is attributable to better cattle management. Dusty trails, manure and other evidence of cattle use in campsites, and direct encounters with livestock are still problems but are not as severe as in the past.

Grazing utilization meets Forest Plan standards.

Wildlife

In 10 and 50 years:

Exceptional wildlife habitat is available for a great many species. Management activity has occurred at a lower level than on adjacent lands.

The corridor provides connectivity between the Great Basin and Blue Mountain physiographic provinces and is used as a major travel route by many wildlife species. This facilitates genetic dispersal which sustains these populations.

Horizontal and vertical differences in vegetative structure accommodates different habitat types and promotes biological diversity. Wildlife habitat for many species has been protected and enhanced. Habitat for sensitive, proposed, threatened or endangered species is available.

In addition to old-growth habitat allocated to Management Area 13 by the Forest Plan, 2,000 acres are being managed to protect or develop

old growth characteristics within the corridor. There is an average of 8 to 15 standing trees 21 inches diameter at breast height (DBH) and 2 to 5 large down logs per acre. Multiple canopied stands simulate unevenaged conditions and provide within stand vertical diversity.

Riparian habitats approximate the natural potential of each site. Hardwood trees and shrubs are common, providing additional layers of canopy.

The variety of grasses, forbs, shrubs, and trees in unforested areas is representative of the potential natural community. Mountain browse species such as bitterbrush, mountain mahogany and serviceberry are significant components on sites which can support them.

Enough habitat for 100 percent of the potential populations of cavity excavating and nesting birds is available throughout the corridor.

Where permitted by site potential, cover for big game is optimum. It includes a high proportion of satisfactory cover to marginal cover. Hiding cover is abundant and big game forage is available in areas where early seral conditions are present and the regeneration of trees is occurring.

Populations of wildlife are generally unchanged from the existing, but there will be some small increases in passerine birds and other riparian dependant species.

Recreation

Roaded Natural ROS Areas

In 10 and 50 years:

People are continuing to derive satisfaction from visits to a relatively remote river corridor where natural conditions have been only slightly altered by management activities. Visitors will continue to enjoy the scenic beauty of the river corridor.

North of the North Fork Malheur River Trailhead, there is moderate evidence of human activities and structures. Roads and motorized vehicles are common in the area. Campsites, some which are heavily used, are numerous. The opportunity to experience solitude by camping out of the sight and sound of other parties is moderate except during hunting season.

Campground development provides a moderate level of comfort and convenience for victors. Signing and public education programs enhance the experiences of visitors and provide for better resource protection. Management presence and regulations will affect visitor behavior.

Semi-Primitive, Non-Motorized ROS

In 10 and 50 years:

That portion of the corridor south of the North Fork Trailhead provides a river setting where future generations still experience a feeling of being in an area unaffected by management activities. Scenic beauty continues to be enjoyed in natural and and natural appearing settings.

Visitors encounter little evidence of other users. Topographic and vegetative screening have been used to separate dispersed campsites. Opporunities for solitude and a feeling of independence and closeness to nature are high.

On-site controls and restrictions are subtle. Contact with administrators is infrequent. Facilities such as Crane Creek Forest Camp and trailheads are managed for ROS semi-primitive motorized experiences. Facilities will be constructed of native and rustic-like materials.

The North Fork Malheur River Trail is managed for hiking, mountain bike and horseback travel.

North of the North Fork Malheur River Trailhead, the evidence of human activities and structures is conspicuous. This includes roads, motorized vehicles, and campsites. Some of the latter are heavily used and encounters with other campers are frequent, particularly during the fall hunting season.

The regulation of behavior is relatively high. Signing, boundary marking and education programs are extensive. Campground development provides a moderate level of comfort and convenience for visitors.

Fire and Fuels

After 10 years:

Fuel loadings have been reduced. Prescribed burning has enhanced scenic values and wildlife habitat.

After 50 years:

The condition of fuels in the corridor is such that ignitions do not produce flames higher than 4 feet, which allows direct attack by crews. These profiles are maintained: in stands dominated by ponderosa pine, 8-PP-4; in mixed conifer stands, 2-MC-2; and in lodgepole pine stands, 3-LP-3. The table below describes these profiles.

Fuel Profile Name	Tons per acre 0-3 inch	Tons per acre 3-20+ inch	Average Depth
8-PP-4	4.5 tons/ac	44 tons/ac	.2 feet
2-MC-2	4.8 tons/ac	6.0 tons/ac	.7 feet
3-LP-3	4.7 tons/ac	18.3 tons/ac	.3 feet

An average of 2 to 5 logs per acre, 12 feet long and 10 in diameter at the small end, have been left on the ground and contribute wildlife habitat. The fuel profiles listed above include this material.

There are less than 6 tons/acre of fuels within 200 feet of developed and dispersed recreation sites. When necessary, slash has been hand piled and burned to achieve this desired fuel loading.

Prescribed fire has been used to improve wildlife habitat and enhance visual quality, primarily in areas where fire has historically been part of the ecosystem. This has reduced fuel loadings and re-established the species composition which existed prior to the fire suppression era. Wildfire may play a more natural role in river corridor ecosystems.

Silviculture/Timber

North Segment of the Corridor affected by the Big Cow Fire

In 10 years:

Portions of this area have been treated to reduce the depredations of mountain pine beetle.

In 50 years:

On sites occupied by lodgepole pine there is a mixture of stand densities, size classes, and small openings which lend a textured appearance to the landscape. Where site conditions permit, a more diverse mixture of seral species such as western larch, Douglas-fir have become established. Large diameter pine trees occupy favored sites but lodgepole is still dominant in this portion of the corridor.

Mixed Conifer, Douglas-fir and Ponderosa Pine Associations

In 10 years:

Above Crane Creek:

Ecological conditions are more stable than they were during the period of fire suppression. Frequent low intensity fires and timber harvest

have controlled encroachment by shade tolerant, climax species such as white fir. Because of bark characteristics, seral species such as ponderosa pine and western larch which flourish after underburns are common. Large diameter ponderosa pine are more dominate in the overstory of stands within the corridor. Stands have an open, park-like appearance with pinegrass/sedge the dominant vegetation in most understories.

Below Crane Creek:

The general ecological condition is more stable, and stands are growing in conditions more similar to those on these sites at the advent of European settlement of this area.

After 50 years:

Above Crane Creek:

Stands in the corridor are in stable ecological conditions such as found before the fire suppression era. Establishment of seral species such as ponderosa pine and western larch were favored by underburns. Frequent, low intensity fires and timber harvest control encroachment by shade intolerant, climax species such as white fir. Large diameter ponderosa pine dominate the overstory of most stands in this portion of the corridor. These stands have an open, park-like appearance with pinegrass/sedge as the dominant vegetation in most understories.

Below Crane Creek:

Stands in this area are in more stable ecological conditions such as found before fire suppression. Frequent, low intensity fires have controlled encroachment by shade tolerant, climax species such as white fir on some sites. Where stand conditions and adverse fire effects have precluded prescribed fire, pre-existing undisturbed conditions were maintained. The absence of timber management has resulted in the loss of some overstory and understory trees.

Scenery

In 10 years:

Visitors see large diameter trees, some multistoried forests, and grasslands bisected by the shrub lined, clear flowing waters of the North Fork Malheur Scenic River.

The corridor has a natural or near natural appearance. Where timber harvest has occurred, trees are in clumps, groups, or naturally spaced; skid roads and temporary roads are not be evident after activities cease. Stumps have been flush cut or cut low to the ground.

In the southern section, alterations in the landscape are not visually evident. Minor changes are apparent in the northern portion of the corridor, but activities are subordinate to the character of the natural landscape.

In 50 years:

Overall, the landscape is a naturally appearing mosaic of varying textures and small openings. A periodic cycle of growth and disturbance maintains stand health and vigor. Disturbance has been natural such as, wildfire and insect/disease activity, or man caused such as, timber harvest, prescribed fire, fish and wildlife projects, and recreation developments.

Ponderosa pine is the dominant overstory tree species and large diameter pine is common throughout the river corridor. On some sites, a mixture of firs or lodgepole is dominant.

There remains at least one juniper tree per acre on shrub/grassland sites. The effects of burning are evident but short lived; this activity stimulates the growth of native grasses and wildflowers.

The corridor has a natural or near natural appearance. Where timber harvest has occurred above Crane Creek Crossing, trees are in

clumps, groups, or naturally spaced; skid roads and temporary roads are not evident after activities. Stumps have been flush cut or cut low to the ground.

Below Crane Creek Crossing, where scheduled harvest has not occurred, the appearance of the river corridor is dominated by large diameter trees, some multistoried forests, and grasslands. Because of areas of dead trees the texture of this natural landscape appears course.

Ponderosa pine remains dominant but has declined in number along this portion of the corridor.

Glossary

Access Management: The development of travel management policies that consider the development, maintenance and protection of all forest resources.

Allowable Sale Quantity (ASQ): The quantity of timber that may be sold from suitable land which has been included in the yield projections for the time period specified by the plan. This quantity is usually expressed on an annual basis as the average annual allowable sale quantity and is considered chargeable volume.

Alternative: A combination of management prescriptions applied in specific amounts and locations to achieve a desired management emphasis as expressed in goals and objectives. For any proposal, a range of alternatives must be developed that address the issues from which the decision-maker can use in choosing the most appropriate prescription.

AMP: Allotment Management Plan is a document prepared in consultation with permittee(s) involved prescribing the manner in and extent to which the permittee's livestock operations will be conducted in order to meet multiple use, sustained yield, economic, and other needs and objectives as determined for the lands involved.

ATV: All terrain vehicle. Two, three and four wheeled motorized vehicles used primarily for the enjoyment of driving along trails and across country.

Background: A term in visual management to describe the visible terrain beyond the foreground and middleground.

Biological Evaluation: A specific process required as part of an environmental assessment that evaluates the potential effects of a proposed project on proposed, endangered, threatened, and sensitive species and their habitats; done for both plants and animals.

Cavity Nester: Wildlife species that nests in cavities or excavated hollows in trees created by birds or other natural phenomena.

Cultural Resources: The physical remains of human activity (artifacts, ruins, structures, sites, etc.) left by prehistoric or historic peoples and the locations of religious or other cultural use held in importance by contemporary Native Americans.

Decision Notice: The written record of the decision after a federal agency completes an environmental assessment. The deciding official documents the decision of which alternative or blends of alternatives is being selected.

Dispersed Campsite: Campsites outside campgrounds with few or no improvements.

Diversity: The distribution and abundance of different plant and animals communities and species within an area.

Ecosystem: An interactive system of living organisms and the environment within they live.

Endangered: Any species in danger of extinction throughout all or a significant portion of its range.

Endemic: Restricted to and constantly present in a particular locality.

Epidemic: A widespread and unusually high incidence of an insect, disease, or other pest. The pest organism often builds up rapidly to an epidemic population level.

Featured Species: A species of high public interest or demand.

Forage Condition: This is a value rating for livestock forage condition and is designed to depict grazing impacts on vegetation and portray grazing opportunities. The status of herbaceous vegetation is rated against the maximum possible given the existing environment. The classes are:

G - Good, which is 76 to 100 percent of the maximum production or species density and composition.

F - Fair, which is 51 to 75 percent of the maximum production or species density and composition.

P - Poor, which is 26 to 50 percent of the maximum production of species density and composition.

V - Very Poor, which is zero to 25 percent of the maximum production or species density and composition.

Foreground: A term in visual management to describe the portions of a river between the observer and up to 1/2 mile distant.

Habitat: The area where a plant or animal lives and grows under natural conditions. Habitat consists of living and non-living attributes, and provides all requirements for food and shelter.

Indigenous: Originating in and characterizing a particular area; native.

Issues: A point, matter, questions of public discussion or interest to be addressed or decided through a planning process. Unresolved conflicts regarding alternative uses of available resources.

Limits of Acceptable Change (LAC): A concept for managing change in a natural area, based upon the premise that ecological and social change will occur as a result of natural and human factors. With the LAC concept, management's goal is to keep the character and amount of change that results from human factors within acceptable levels that are consistent with the area.

Management Indicator Species: Species selected as ecological indicators. The welfare of a management indicator species is presumed to be an indicator of the welfare of other species using the

same habitat. The condition and welfare of these species can be used to assess the impacts of management actions on particular areas or habitats.

Middleground: A term in visual management to describe the visible terrain beyond the foreground and up to 5 miles distant.

Mineral Entry: The filing of a mining claim on Federal land to obtain the right to mine any locatable minerals it may contain.

Neo-Tropical Migrants: Birds which breed during the summer in North America but overwinter in Central and South America.

Non-scheduled Timber Harvest: Timber harvest allowed to occur in an area which is not calculated as part of the programmed harvest. See scheduled timber harvest.

Old-Growth Stand: Any stand of trees (10 acres or greater in size) generally 0ontaining the following characteristics: (1) Stands contain mature and overmature trees in the overstory and are well into the mature growth stage; (2) Stands will usually contain a multi-layered canopy and trees of several age classes; (3) Standing dead trees and down material are present; (4) Evidence of human activity may be present, but it does not significantly alter the other characterisitics and would be a subordinate factor in a description of such a stand.

Old-Growth Trees: Trees which exhibit characteristics of being mature or overmature such as thinning and dead or flat tops, deeply fissured bark, and large diameters.

Oregon Department of Fish and Wildlife (ODFW): The state agency with primary responsibility for managing fish and wildlife populations.

Peak Flow: The highest flow of water attained during a particular flood for a given stream or river.

PETS: Protected, endangered, threatened and sensitive animal and plant species.

Potential Natural Community: The biotic community that would become established if all successional sequences were completed without interference by humans under present environmental conditions. Natural disturbances are inherent in development which may include naturalized nonnative species.

Prescription: Specific written directions for management activities.

Primary Cavity Excavator: Any animal that excavates a cavity in wood for nesting or roosting.
ROS: Recreation Opportunity Spectrum is a system of planning and managing recreation resources. There are five classes:

P (Primitive): An area of unmodified natural environment. Usage by humans is low and motorized use within the area is not permitted.

SPNM (Semi-primitive, Non-motorized): An area of natural environment. Interaction of users is low but there is often evidence of human usage. Motorized use is not permitted but local roads used for other resource management activities may be present.

SPM (Semi-primitive, Motorized): An area of predominantly natural environment. The concentration of users is low but there is often evidence of other users. Some motorized recreation use, as in motor bikes, is permitted.

RN (Roaded Natural): An area predominantly natural-appearing environment with moderate evidence of human usage. Interaction between users is moderate to high and conventional motorized use is allowed.

RM (Roaded Modified): An area characterized by natural environment substantially modified by the development of structures and vegetative manipulation. Signs and sounds of humans are readily evident. Facilities are often provided for special activities. Facilities for intensive motorized use and parking are available

Range Allotment: A designated area available for livestock grazing upon which a specified number, kind, of livestock and season of use may be grazed under a term grazing permit.

Range Permittee: One who holds a permit to graze livestock on National Forest lands.

Range Trend: The direction of change in range or forage condition.

Resident Fish: Fish species that complete their entire life cycle in fresh water and inhabit the water body being discussed. Examples are mountain whitefish, bull trout, and redband trout.

Rotation: Planned number of years between the formation of a generation of trees and its final harvest at a specified stage of maturity. It is an appropriate term for even-aged silvicultural systems only. In this document, it refers also to the predicted age of individual trees when harvest would be likely to occur.

Scheduled Timber Harvest: Timber harvest programmed in a management plan to occur at a certain rate. The assigned sale quantity (ASQ) is the forest's total scheduled harvest programmed for a 10 year period expressed as an annual average.

Sedimentation: A process where material carried in suspension by water flows into streams and rivers, increasing turbidity, and eventually settling on the bottom or deposited along banks or on bars.

Sensitive Species: Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

Suitability: The appropriateness of applying certain resource management practices, such as timber management. It is determined by an analysis of the economic and environmental consequences and the alternative uses forgone. A unit of land may be suitable for a variety of individual or combined

management practices. Suitable forest lands are forested lands that are available for timber management because they have not been withdrawn because of Law or Regulation, where irreversible damage would not occur, and where regeneration can be assured. Areas may be determined unsuitable for timber harvest for a wide variety of reasons, including fragile or shallow soils, scenic values, special wildlife habitat areas, and riparian values, among other possible reasons.

Structural Improvements: Includes such structures as nesting boxes, fences, gates, and water developments.

Suitable Timber Lands: Forested lands that are available for timber management because they haven't been withdrawn because of Law or Regulation, where irreversible damage would not occur, and where regeneration can be assured.

Suitable - Scheduled Lands: Land suitable and scheduled for timber production which are in the land base for the calculation of the allowable sale quantity and long-term sustained yield timber capacity.

Suitable - Unscheduled Lands: Lands suitable but not scheduled for timber production which are not in the land base for the calculation of the allowable sale quantity nor long-term sustained yield timber capacity.

T&E: Threatened and Endangered Species.

Tentatively Suitable Forest Land: Forest land that is producing or is capable of producing crops of industrial wood and: (1) has not been withdrawn by Congress, the Secretary of Agriculture, or the Chief of the Forest Service; (2) existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity or watershed conditions; (3) existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that it is possible to restock asequately within 5 years after final harvest; and (4) adequate information is available to project responses to timber management activities.

Term Grazing Permit: A written authorization issued for a specific period of not more than 10 years to graze a specified number, kind, and class of livestock for a specified length of time on National Forest System or other lands administered by the Forest Service. Upon expiration the holder has priority for receipt of a new term grazing permit. There are five major kinds of Term Grazing Permits.

Utility Corridor: A linear strip of land identified for the present or future location of transportation, or utility rights-of-way within its boundaries.

Utilization Standard: Standards guiding the use of forage by livestock and wildlife, usually expressed as the percent removed by weight.

VQO: Visual Quality Objective is the desired level of management based on physical and sociological characteristics of an area. Classifications are:

P (Preservation): Allows only for ecological changes.

R (Retention): Provides for management activities not visually evident.

PR (Partial Retention): Management activities may be evident to viewer but must remain visually subordinate to surrounding landscape.

Mod (Modification): Management activities may visually dominate the natural surrounding landscape but must borrow from naturally established form, line, color, texture.

Watchable Wildlife: Animals for viewing, photographing, etc., rather than hunting or fishing.

List of Preparers

Jack Berry, Writer-editor, Prairie City Ranger District
Wrote the environmental assessment.

Lori Blackburn, Silviculturist, Prairie City Ranger District
Assisted in developing alternatives and analyzing effects to vegetation.

Carl Corey, Resource Assistant, Fish, Wildlife, and Botany, Prairie City Ranger District
Assisted in developing alternatives, provided information on wildlife populations and habitat, assisted in preparation of the biological evaluation, and analyzed effects of alternatives on wildlife.

Robert Crisler, Timber Sale Planner, Prairie City Ranger District
Assisted in developing alternatives.

Bonita Duncan, District Archeologist, Prairie City Ranger District
Provided information about cultural resources and analyzed effects.

Dan Ermovick, Resource Assistant, Prairie City Ranger District
Assisted in developing alternatives and collecting baseline inventory data.

John Funderberg, District Fire Management Officer, Prairie City Ranger District
Assisted in developing alternatives.

Carole Gillespie, Recreation Forester, Prairie City Ranger District
Assisted in developing alternatives, provided information on recreation, minerals, special uses, trails, and roads, and analyzed effects.

Rich Gritz, Forest Fisheries Biologist, Malheur National Forest
Assisted in developing alternatives, provided information on fish populations and habitat, and analyzed effects.

Jeff Guy, Landscape Architect, Malheur National Forest
Involved with viewshed analysis.

Frank Guzman, Range Conservationist, Prairie City Ranger District
Assisted with alternative development, provided information on grazing and allotment management, and analyzed effects.

Stephen Keegan, Forest Landscape Architect, Malheur National Forest
Assisted in developing alternatives, provided information on scenery, conducted the viewshed analysis, and analyzed effects.

David Kretzing, Hydrologist, Prairie City Ranger District
Assisted in alternative development, provided information on watershed and water quality, and analyzed effects.

Greg Lind, Botanist, Prairie City Ranger District
Provided information about botanical resources.

Jim Nutt, Fisheries Biologist, Prairie City Ranger District
Assisted in developing alternatives and provided information about wildlife habitats and populations.

Karen Ogle, Forester, Prairie City Ranger District
Assisted in alternative development and provided information about prescribed fire and fuels.

Maurine Quinn, Forestry Technician, Prairie City Ranger District
Provided Geographic Information Systems (GIS) support and provided information about wildlife habitat.

Ray Perkins, Fisheries Biologist, Oregon Department of Fish and Wildlife
Assisted in alternative development and provided information about fish populations and habitat.

Suzanne Crowley Thomas, Forest Archeologist
Provided information about cultural resources.

Greg Whipple, Silviculturist, Prairie City Ranger District
Assisted in alternative development and provided information about vegetation within the corridor.

Gerrish Willis, Planning Team Leader, Malheur National Forest
Wrote the resource assessment, assisted in alternative development, conducted analysis, and assisted in writing the environmental assessment. Served as interdisciplanary team leader and coordinated public involvement.

Eugene Yates, Forest Botanist, Malheur National Forest
Prepared the biological evaluation.

Appendix F

ROLES OF AGENCIES

APPENDIX F

Roles of Agencies with North Fork Malheur Scenic

River Management Responsibilities

Successful implementation of the North Fork Malheur Scenic River Management Plan will be through the cooperation of federal, state, and local government agencies. The primary roles and responsibilities of these entities are outlined below.

Federal Agencies

Forest Service:

The Forest Service is responsible for the management and administration of National Forest System Lands. All lands within the North Fork Malheur Scenic River corridor (Management Area 22A) are administered by the Malheur National Forest. Lead administration is done by the District Ranger, Prairie City Ranger District.

U.S Fish and Wildlife Service:

The U.S. Fish and Wildlife Service administers the Federal Endangered Species Act of 1973 (as amended). The Forest Service consults with this agency when it has determined that a threatened or endangered species, or its critical habitat, may be affected by a proposed management action. This agency also lists species which it determines are threatened or endangered. The bull trout is a species which has been recently petitioned for listing.

State Agencies

Several State of Oregon agencies have regulatory responsibilities for uses within the river corridor.

Oregon Water Resources Department:

This agency is responsible for the management and allocation of the state's water resources. The Water Resources Commission, an appointed citizens body, develops policy and administrative rules for the Water Resources Department to follow. This department is responsible for granting water rights and monitoring water use.

The Water Resources Commission can protect fish, wildlife, and recreation values on designated wild and scenic rivers through:

a. establishment and maintenance of instream water rights and minimum perennial streamflows;
b. water use policies in basin programs to guide evaluation of proposed developments;
c. water use classifications;

d. water right application review and permit conditioning; and,
e. water use regulation.

Division of State Lands (DSL):

This agency is the administrative arm of the State Land Board, which is composed of the Governor, Secretary of State, and State Treasurer. The Division of State Lands administers the Oregon Removal and Fill Law, which protects state waterways from uncontrolled alteration. This law requires a permit from the DSL for the removal or fill of more than 50 cubic yards of material within waterways of the state. The DSL also has authority to lease the state-owned beds of navigable waterways. Navigability has not been established for this river.

As with any jointly managed resource, jurisdiction is not as important as care for the resources. The DSL and Forest Service will continue to work together to ensure that the public trust interest and the purpose of the Wild and Scenic Rivers Act are met.

Oregon Department of Fish and Wildlife:

This department manages fish and wildlife resources within the state, regulates hunting and fishing, and has habitat preservation responsibilities. Though the Forest Service is responsible for fish and wildlife habitat management on National Forest System Lands (all the lands in the river corridor), it manages these habitats in cooperation with the department. Some funding for habitat improvement projects, population inventory, and other studies are cooperative ventures between the two agencies.

The river area is within the Southeast Region of the Department with headquarters in Hines, Oregon. Goals for fisheries resources are expressed in the Malheur River Basin Plan, 1990.

State Historic Preservation Officer (SHPO):

The SHPO serves in an oversight capacity for review of Federal Agencies' compliance with the federal laws and regulations pertaining to cultural resource management.

Department of Environmental Quality (DEQ):

This agency is responsible for water quality control. It implements the plans, regulations, procedures, and policies of the Environmental Quality Commission, made up of five appointed members. The Commission has adopted a statewide Water Quality Management PLan, which is codified in the Oregon administrative rules.

The DEQ is responsible for review and action upon requests for Certification of Water Quality Compliance pursuant to Section 401 of the Federal Clean Water Act.

County Governments

The river corridor contains 1,541 acres in Baker County and 5,493 acres of Grant County. The county governments have primary responsibility for public safety and law enforcement within the corridor. Through cooperative law enforcement agreements, as authorized through the Sisk Act, federal funding is made available for public safety and enforcement of state law in heavy recreation use areas such as Crane Creek Crossing and the North Fork Malheur Campground. Through the Sisk Act, counties are reimbursed for recreational public safety state law enforcement.

Appendix G

CORRIDOR BOUNDARY DECISION NOTICE

MARCH 3, 1990

DECISION NOTICE AND FINDING OF NO SIGNIFICANT IMPACT

NORTH FORK MALHEUR WILD AND SCENIC RIVER BOUNDARY ESTABLISHMENT

PRAIRIE CITY RANGER DISTRICT
MALHEUR NATIONAL FOREST
PACIFIC NORTHWEST REGION

An Environmental Assesment that discusses proposed wild and scenic river boundary locations for the North Fork Malheur River is available for public reveiw. The document may be reviewed at the Regional Forest Service Office, Portland, Oregon, the Malheur National Forest Supervisors Office, John Day, Oregon and the Prairie City Ranger District Office, Prairie City, Oregon. the project located on National Forest lands in Sections 16, 21, 28, 33, and 34, of T.14S., R.35 1/2 E., Sections 3, 10, 14, 15, 22, 23, 26, and 35 of T.15S., R.35 1/2 E., Sections 2, 11, 14, 23, 25, 26, and 36 of T.16S., R.35E., Sections 30 and 31, T.16S., R.36E., and Sections 6, 7, 16, 17, 18, and 21 of T.17S., R.36E., W.M.

It is my decision to select Alternative 2 as developed by the Interdisciplinary Team for the following reasons: a) it provides for protection of water sources to the river (side draws) through forest standards for protection of riparian areas and water quality; b) it includes old growth ponderosa pine habitat by locating the boundary to incorporate a major portion of an old growth habitat area; c) it includes springs which are adjacent to the river; d) it includes old growth stands in the visual foreground to protect their scenic value; and e) it locates the boundary to include the outstandingly remarkable scenic foreground, geologic features, and other features which enhance the valueof the river corridor.

Alternative 2 proposes a boundary around approximately 6722 acres and averages 295 acres/river mile. The designated portion of the river is approximately 22.8 river miles in length.

Alternative 1 proposes a boundary around approximatley 7134 acres and averages 313 acres/river mile. This alternative was not selected because the boundary includes acres on the east central portion of the river corridor which are not needed to preserve outstandingly remarkable scenic or geologic values for which the river was established.

Alternative 3 proposes a boundary around approximatley 5756 acres and averages 252 acres/river mile. This alternative was not selected becasue the boundary excludes an appendage on Crane Creek which provides a fishing and hiking recreation opportunity associated with the river and proposes a norrow boundary in the east central portion of the river and excludes old growth ponderosa pine stands in the visual foreground.

Alternative 4 is the no action alternative and was not selected because the interim 1/4 mile boundary location does not effectivley incorporate the outstanding remarkable and significant values of the river corridor.

Based on the site-specific environmental analysis documented in the Environmental Assessment, I have determined that this is not a major Federal action that would significantly affect the quality of the human environment; therefore, an Environmental Impact Statement is not needed. This determination was made considering the followig factors:

(1) There will be no significant irreversible resource commitments or irretrievable loss of timber production, wildlife habitats, soil production or water quality;

(2) Public health and safety are minimumally affected by the proposed actions;

(3) There are no known significant cumulative effects between this project and other projects implemented or planned within this drainage;

(4) These actions do not set a precedent for the other projects that may be implemented to meet the goals and objectives of the Oregon Omnibus Wild and Scenic Rivers Act;

(5) Wetlands and floodplains within the proposed boundary location will not be significantly effected;

(6) All proposed endangered, threatened or sensitive species will not be affected;

(7) Based on public participation, the effects on the quality of human environment are not likely to be highly controversial;

(8) There are no known effects on the human environment that are highly uncertain or involve unique or unknown risks;

(9) The actions do not threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment; and

(10) The action will not result in the transfer, sale, demolition or substantial alteration of cultural resources.

Note: Through a clerical error, this document was not returned to the Malheur National Forest in a timely manner that allowed for adequate opportunity for public review. Therefore, this decision revokes earlier signing of this same decision notice.

This decision may be appealed in accordance with the provisions of 36 CFR 217 by filing a written notice of appeal within 45 days of the date of this decision. The appeal must be filed with F. Dale Robertson, Chief, USDA Forest Service, South Bldg., 12th and Independence Ave. S.W., P.O. Box 96090, Washington, D.C. 20090, Reviewing Officer, and a copy simultaneously to John F. Butruille, Regional Forester, USDA Forest Service, 318 SW Pine Street, P.O. Box 3623, Portland, Oregon 97208, Deciding Officer. The notice of appeal must include sufficient narrative evidence and argument to show why this decision should be changed or reversed. (36 CFR 217.9).

Dated 3-5-90

JOHN F. BUTRUILLE
Regional Forester
Pacific Northwest Region

Published in the Blue Mountain Eagle 3/29/90

Appendix H

REGIONAL ANALYSIS GUIDE

PROCEDURE TO
EVALUATE WATER RESOURCES PROJECTS

INTRODUCTION

This paper documents a procedure which can be uniformly and consistently applied by the Forest Service to determine whether proposed water resources projects present a direct and adverse affect to designated wild and scenic river values, and thus would be prohibited under Section 7 of the Wild and Scenic Rivers Act (the "Act"), or whether the projects should be allowed to proceed because they do not meet that threshold.

The procedure also applies to congressionally identified study rivers (Section "5a" rivers), which are afforded interim protection from projects which would affect "free-flow" characteristics in Section 7(b) of the Act. Although not protected from such projects in the Act, rivers identified for study through the land management planning process (Section "5d" rivers) are also afforded protection via agency policy (Forest Service Planning Handbook (1909.12, Chapter 8.12).

The procedure may also be applied to evaluate activities proposed outside a designated or study river corridor to determine if they result in indirect effects that "invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of designation," as referenced in Section 7 (a).

This procedure paper presumes a strict interpretation of what activities would qualify as water resources projects. Water resources projects have been defined in 36 CFR Part 297 as:

> "...any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act, or other construction of developments which would affect the free-flowing characteristics of a Wild and Scenic River or study river."

Section 16 (b) of the Act provides a definition of "free-flow" that assists in identification of water resources projects. It states:

> "Free-flowing, as applied to any river or section of a river, means existing or flowing in natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway."

Therefore, if a proposed activity would affect a river's free-flow, or meet other criteria outlined in 36 CFR 297, it qualifies as a water resources project and the Section 7 procedure defined in this paper can be applied.

ISSUE

The key issue, assuming that the proposed activity is identified as a water resources project, is whether the project presents a direct and adverse affect on the values for which the river was designated or is being studied (or if a proposed activity is above or below the area, does it unreasonably diminish the scenic, recreational, or fish and wildlife values)?

Lack of a standardized procedure to analyze effects has contributed to the difficulty of making an adequate analysis of water resource projects as required by Section 7, manual direction (FSM 2354), and the Forest Service Handbook (FSH 1909.12, Chapter 8). The balance of this paper describes a standardized analysis procedure that incorporates the following principles:

a. Effects will be judged in the context of the legislation designating the affected wild and scenic river and the management objectives for the river as defined in the comprehensive river management plan. (In the case of study rivers, effects are judged in the context of relevant Forest Plan standards and guidelines and the potential affect of the activity on the river's eligibility.)

b. Water resource projects are permissible if the net effect protects or enhances values for which the river was designated or is being studied. Water resource projects are not permitted if they have a direct and adverse effect on such river values. (In the case of study rivers management activities may be carried out provided they would not result in a reduced classification recommendation, and are consistent with other relevant Forest Plan standards and guidelines.)

c. Permissible water resources projects will, to the extent practicable, maintain or enhance the free flowing characteristics of the river.

d. Water resources projects may be permitted even though they may have an effect on free flowing characteristics if:

   (1) the specific purpose of the project is to protect or enhance the values for which the river was designated, restore the natural characteristics of the river, and/or improve the water quality of the river;

   (2) associated impacts on free flowing characteristics of the river are minimized to the extent practicable; and,

   (3) the proponent and manager of the project is a federal, state, or local governmental entity.

PROCEDURE

Background: In developing this procedure we recognize that:

- It is necessary to provide a temporal and spatial context for evaluating river related proposals. The wild and scenic river management planning process should result in a clear statement of long term management goals and objectives for free-flow, water quality, riparian areas and floodplains, and the outstandingly remarkable and other significant resource values designated by statute.

- Section 7 and promulgating rules (36 CFR 297) require an analysis of effects associated with a proposed water resources project. The analysis of activities deemed acceptable must clearly demonstrate consistency with management goals and objectives.

- Management of river ecosystems should be designed to achieve management goals and objectives through natural processes and use of techniques that mimic those processes. To insure that long term goals and objectives are met, careful analysis and evaluation of these processes, time scales, and public perceptions is necessary.

- State fish and wildlife agencies share responsibility with the Forest Service for fish and wildlife resources on wild and scenic river's. Identification and evaluation of water resource projects should be coordinated with the States, recognizing and supporting attainment of state fish and wildlife management objectives to the extent they are consistent with the outstanding values for which the river was designated or is being studied.

Step-by-Step Procedure: The following procedure is designed to evaluate proposed activities within a wild and scenic river ecosystem. This procedure is not simply one of disclosure. Rather, it is a framework to identify changes in free-flow conditions and evaluate the effects associated with project proposals.

1) Establish Need and Evaluate Consistency with Management Goals and Objectives. The first step is to define the need for the proposed activity and make a *preliminary* determination whether the proposed activity is consistent with the management goals and objectives for the river. Management goals provide the standard for evaluation of effects 1/. If the activity does not evidence a compelling need or is inconsistent with the management goals and objectives or other applicable laws (e.g. Wilderness Act, Endangered Species Act, etc.), the project may not be considered further.

1/ If management goals and objectives have not been formalized through a river planning process, utilize Forest Plan standards and guidelines and any applicable state fish and wildlife, water quality, or other state agency management plans or policies consistent with identified values, to develop objectives for each of the outstanding river values.

For projects that appear needed to help attain the management goals and objectives, proceed with the following steps. The scope of analysis should be commensurate with the magnitude and complexity of the project proposal. The procedure should be accomplished via an interdisciplinary team with adequate skills for the analysis. Note that each step requires some professional judgement.

2) Define the Proposed Activity. Provide an objective description of the proposed activity. The level of detail should be proportional to the scope of the proposed project and should indicate whether the project is isolated or part of a more complex or comprehensive proposal.

a. project proponent(s)
b. purpose (clearly describe the need for the project)
c. location
d. duration of proposed activities
e. magnitude/extent of proposed activities
f. relationship to past and future management

3) Describe How the Proposed Activity Will Directly Alter Within-Channel Conditions. Address the magnitude and spatial extent of the effects the proposed activity will have on in-channel attributes. Special attention should be given to changes in features which would affect the outstandingly remarkable and other significant resource values.

a. What is the position of the proposed activity relative to the stream bed and banks?
b. Does the proposed activity result in changes in:
    1. active channel location?
    2. channel geometry (i.e. cross-sectional shape or width/depth characteristics)?
    3. channel slope (rate or nature of vertical drop)?
    4. channel form (e.g. straight, meandering, or braided)?
    5. relevant water quality parameters (e.g. turbidity, temperature, nutrient availability)?

4) Describe How the Proposed Activity Will Directly Alter Riparian and/or Floodplain Conditions. Address the magnitude and spatial extent of the effects the proposed activity will have on riparian/floodplain attributes. Special attention should be given to changes in features that would affect the outstandingly remarkable and other significant resource values.

a. What is the position of the proposed activity relative to the riparian area and floodplain?

b. Does the proposed activity result in changes in:
    1. vegetation composition, age structure, quantity, vigor, etc.?
    2. relevant soil properties such as compaction, percent bare ground, etc.?
    3. relevant floodplain properties such as width, roughness, bank stability or susceptibility to erosion, etc.?

5) Describe How the Proposed Activity Will Directly Alter Upland Conditions. Address the magnitude and spatial extent of the effects the proposed activity will have on associated upland attributes. Special attention should be given to changes in features that would affect the outstandingly remarkable and other significant resource values.

a. What is the position of the proposed activity relative to the uplands?
b. Does the proposed activity result in changes in:
    1. vegetation composition, age structure, quantity, vigor, etc.?
    2. relevant soil properties such as compaction, percent bare ground, etc.?
    3. relevant hydrologic properties such as drainage patterns, the character of surface and subsurface flows, etc.?
c. Will changes in upland conditions influence archeological, cultural, or other identified significant resource values.

6) Evaluate and Describe How Changes in On-Site Conditions Can/Will Alter Existing Hydrologic or Biologic Processes. Evaluate potential changes in river and biological processes by quantifying, qualifying and modeling as appropriate.

a. Does the proposed activity affect:
    1. ability of the channel to change course, re-occupy former segments, or inundate its floodplain?
    2. streambank erosion potential, sediment routing and deposition, or debris loading?
    3. the amount or timing of flow in the channel?
    4. existing flow patterns?
    5. surface and subsurface flows?
    6. flood storage (detention storage)?
    7. aggradation/degradation of the channel?
b. Does the proposed activity affect biological processes such as:
    1. reproduction, vigor, growth and/or succession of streamside vegetation?

2. nutrient cycling?
3. fish spawning and/or rearing success?
4. riparian dependent avian species needs?
5. amphibian/mollusk needs?

7) Estimate the Magnitude and Spatial Extent of Potential Off-Site Changes. Address potential off-site, or indirect effects of the proposed activity, acknowledging any uncertainties (i.e., a risk analysis).

a. Consider and document:
1. changes that influence other parts of the river system.
2. the range of circumstances under which off-site changes might occur (e.g., as may be related to flow frequency).
3. the probability or likelihood that predicted changes will be realized.
b. Specify processes involved, such as water, sediment, movement of nutrients, etc.

8) Define the Time Scale Over Which Steps 3 - 7 are Likely to Occur.

a. Review steps 3 - 7 looking independently at the element of time.
b. Consider whether conditions, processes and effects are temporary or persistent. That is, attempt to define and document the time scale over which effects will occur.

9) Compare Project Analyses to Management Goals and Objectives. Based on the analysis of steps 3-8, identify project effects on achievement, or timing of achievement, of management goals and objectives relative to free-flow, water quality, riparian area and floodplain conditions, and the outstandingly remarkable and other significant resource values.

10) Section 7 Determination. Based on the analysis of steps 3-9 document:

a. effects of the proposed activity on conditions of free-flow, including identification of the measures taken to minimize those effects.
b. any direct and adverse effects on the outstandingly remarkable and other significant resource values for which the river was designated or is being studied.
c. any unreasonable diminishing of scenic, recreational, or fish and wildlife values associated with projects above or below the area.

The determination should permit those water resource projects that are consistent with the legislation designating the affected wild and scenic river and the management objectives for the river as defined in the comprehensive river management plan, *or* in the case of study rivers, the proposed activities would not result in a reduced classification recommendation and is consistent with Forest Plan standards and guidelines. Permissible water resources projects will, to the extent practicable, maintain or en-

hance the free flowing characteristics of the river. Water resource projects that have a direct and adverse effect on designated river values or management objectives are not to be permitted.

It is important to note that water resources projects may be permitted even though they may have an effect on free flowing characteristics if:

a. the specific purpose of the project is to protect or enhance the values for which the river was designated, restore the natural characteristics of the river, and/or improve the water quality of the river;

b. the associated impacts on free flowing characteristics of the river are minimized to the extent practicable; and,

c. the proponent and manager of the project is a federal, state, or local governmental entity.

Include the Section 7 determination as part of the broader NEPA analysis of the proposed activity. See the following section for additional information on the relationship of Section 7 determinations and the NEPA process.

INCORPORATION OF SECTION 7 DETERMINATIONS IN THE NEPA PROCESS

The Code of Federal Regulations states:

"The determination of the effects of a proposed water resources project shall be made in compliance with NEPA."

The following discussion offers more specific information regarding incorporation of the Section 7 procedure into the NEPA process. It also includes information relating to the decision document and the responsible official.

A proposed water resources project may be an independent project such as watershed or fish habitat restoration or construction of a boat ramp or fishing pier, or part of a larger program that serves a variety of purposes. In either situation, the Section 7 procedure is to be completed as a separate analysis by an interdisciplinary team. For designated rivers (Section 3a) and congressionally identified study rivers (Section 5a), the Section 7 procedure would be explicitly documented in, or appended to the NEPA document with appropriate reference in the NEPA analysis. Similarly, for rivers identified for study via the land management planning process (Section 5d), an analysis as to the potential effect of a proposed project on free-flow and the outstandingly remarkable values should be incorporated, appended, or available in the analysis file.

The decision document will describe the Section 7 determination for the preferred alternative for a designated or congressionally identified study river. This determination should state whether the proposed project will affect free-flow characteristics, whether it will or will not have a "direct and adverse effect on the values for which the river was designated" (or might be added to the System), or whether proposed projects above or below the area will "unreasonably diminish" those resource values. The Section 7 evaluation may result in identification of water-resources projects which protect, restore or enhance the values for which the river was designated or identified for study. In approval of such projects, the decision notice should clearly indicate that determination.

For study rivers identified via the land management planning process (i.e. Section 5d rivers), utilize the Section 7 procedure with the decision document referencing that an analysis was conducted to evaluate the potential effect of the proposed project on free-flow and the outstandingly remarkable values. Note, that Section 7 is not required for 5d rivers, but agency policy (FSH 1909.12 8.12) provides direction to protect the free-flowing condition and outstandingly remarkable values.

The responsible official differs with the status of the river and whether or not another federal agency is involved. For proposed water resources projects on a 3a or 5a river, in which there is another federal agency "assisting by loan, grant, license or otherwise...," the Regional Forester is the responsible official (reference FSM 2354.04e). If there is no other federal agency "assistance" for a project on a 3a or 5a river, the appropriate line officer signs the decision document. Decision documents for water resources projects on a 5d river are signed by the appropriate line officer.

REGIONAL OVERSIGHT

The Regional Offices are to provide for review of the Section 7 analysis completed for proposed water resources projects. This review process should be coordinated by the Recreation staff group and involve other appropriate staff areas such as fisheries, watershed, engineering, etc. The intent of this oversight is to ensure a consistent approach to the evaluation of proposed water resources projects in wild and scenic rivers. The review is not intended to make the final decision.

SUMMARY

These procedures were developed to analyze projects that have the potential to affect the free-flowing condition and/or outstandingly remarkable values of designated and study wild and scenic river's and determine which projects are consistent with the Act by protecting, restoring, and enhancing those river values. The scope of the analysis will vary with the magnitude and complexity of the proposed activity. The procedure requires interdisciplinary analysis and application of professional judgement within the requirements of the Act.

Examples of projects that would likely be subject to Section 7 analysis include, but are not limited to:

1. Log removal for recreation user safety;
2. Fisheries habitat and watershed restoration and enhancement projects;
3. Bridge and other roadway construction/reconstruction projects;
4. Bank stabilization projects;
5. Recreation facilities such as boat ramps and fishing piers;
6. Activities that require 404 permits from the Corps of Engineers.

Appendix I

LEGISLATION ABSTRACT

ABSTRACT OF RELEVANT LEGISLATION, REGULATIONS, MANUAL AND HANDBOOK DIRECTION, LEGAL OPINION AND CONGRESSIONAL DIRECTION RELATED TO WATER RESOURCES PROJECTS

WILD AND SCENIC RIVERS ACT

P.L. 90-542, Section 1(b):

"It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes."

P.L. 90-542, Section 7(a):

Section 7 provides specific protection of designated and congressionally identified study rivers by prohibiting the licensing "...of any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act." Additionally this section states:

"...no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration."

The section also addresses federal agency limitations on licensing or assisting in developments below or above designated or proposed W&SR's that "invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area..."

P.L. 90-542, Section 10(a):

Section 10(a) states Congressional intent for management to protect and enhance those values for which a river was designated (or is being studied). The section calls

for development of management plans with specific objectives that are based on the special values of the particular river. Specifically:

"Each component of the national Wild and Scenic Rivers System shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public uses and enjoyment of these values. In such administration primary emphasis shall be given to protecting its esthetic, scenic, historic, archeologic, and scientific features. Management plans for any such component may establish varying degrees of intensity for its protection and development, based on special attributes of the area."

P.L. 90-542, Section 12(a):

Section 12 sets forth broad authority for management policies on federal lands "which include, border upon, or are adjacent to, any river included in the National Wild and Scenic Rivers System or under consideration for such inclusion, in accordance with section 2(a)(ii), 3(a), or 5(a)..." directing them to "take such action respecting management policies, regulations, contracts, plans...as may be necessary to protect such rivers in accordance with the purposes of this Act."

P.L. 90-542, Section 16(b):

"Free-flowing, as applied to any river or section of a river, means existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion shall not automatically bar its consideration for such inclusion: *Provided*, That this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the national Wild and Scenic Rivers System."

CODE OF FEDERAL REGULATIONS

36 CFR 297 - Regulations for Implementing Section 7 of the Wild and Scenic Rivers Act:

"Water resources projects" have been defined in 36 CFR 297 as:

"...any dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act, or other construction of developments which would affect the free-flowing characteristics of a Wild and Scenic River or study river."

"These regulations require that a determination of the direct and adverse effects of a proposed project be completed through the NEPA process."

INTERAGENCY GUIDELINES FOR ELIGIBILITY, CLASSIFICATION AND MANAGEMENT OF RIVER AREAS - September 7, 1982

Section III - Management:

"Other Resource Management Practices. Resource management practices will be limited to those which are necessary for protection, conservation, rehabilitation or enhancement of the river area resources. Such features as trail bridges, fences, water bars and drainage ditches, flow measurement devices and other minor structures or management practices are permitted when compatible with the classification of the river area and provided that the area remains natural in appearance and the practices or structures harmonize with the surrounding environment."

This section establishes a nondegradation and enhancement policy for all designated river areas. Each component of the W&SR's system is to be managed to protect and enhance the values for which the river was designated, while providing for public recreation and resource uses which do not adversely impact or degrade those values. This guideline specifically identifies three criteria for evaluation of proposed activities that are consistent with the analysis called for in Section 7 of the Act, namely: 1) compatibility with the values for which the river was designated; 2) no impact on natural appearance; and, 3) harmonize with the surrounding environment.

FOREST SERVICE MANUAL

FSM 2354.04e

"Regional Foresters shall: Determine the direct and adverse effects of water resource projects upon designated or study wild and scenic rivers, and determine, pursuant to section 7 of the Wild and Scenic Rivers Act, whether the Department of Agriculture will consent to a proposed action (36 CFR 297). This authority shall not be redelegated..."

FSM 2354.42b

"Manage wildlife and fish habitats in a manner consistent with the other recognized river attributes."

"Recommendations to State agencies concerning the management of fisheries must be consistent and in harmony with established river objectives.

"The construction of minor structures for such purposes as improvement of fish and game habitat are acceptable in wild river areas provided they do not affect the free-flowing characteristics of the river and harmonize with the surrounding environment."

The last portion of this manual direction suggests that any fish and wildlife habitat improvement project which would affect conditions of free-flow are not acceptable in wild rivers. However, the primary factor in determining the acceptability of proposed fish and wildlife habitat management projects within Wild and Scenic River corridors is whether or not they have a direct and adverse affect on the values for which the river was designated (or is being studied). Water resources projects which do not directly and adversely affect the values for which the river was designated, or is being studied, are acceptable. Those projects that are incompatible with the outstanding values of the river corridor are not acceptable.

FOREST SERVICE HANDBOOK

FSH 1909.12, Chapter 8.12

"1. To the extent the Forest Service is authorized under law to control stream impoundments and diversions, the free-flowing characteristics of the identified river cannot be modified."

"3. Management and development of the identified river and its corridor cannot be modified to the degree that eligibility or classification would be affected..."

FSH 1909.12, Chapter 8.2

"1. Standards for Wild Rivers...

d. Flood Control: No flood control dams, levees, or other works are allowed in the channel or river corridor. The natural appearance and essentially primitive character of the river areas must be maintained...

i. Structures: ...New structures would not be allowed except in rare instances to achieve management objectives (i.e. structures and activities associated with fisheries enhancement programs could be allowed.)"

"2. Standards for Scenic Rivers...

i. Structures: ...New structures that would have a direct and adverse effect on river values would not be allowed."

"3. Standards for Recreational Rivers...

i. Structures: ...New structures are allowed for both habitation and for intensive recreation use."

LEGAL OPINION

A May 1979 memorandum to the Chief from Clarence W. Brizee (Deputy Director, Forestry Natural Resources Division; USDA, OGC) provides the following interpretation, which is consistent with our current understanding:

> "With regard to water resources projects, the Wild and Scenic Rivers Act is not a blanket ban or absolute prohibition... The only activity absolutely prohibited by Section 7 is the licensing of dams and other project works by the Federal Energy Regulatory Commission under the Federal Power Act within the boundaries of a designated or study river. Other federally assisted water resources projects may be permitted. Thus, rather than being characterized by absolute prohibitions, the Act embodies a flexible approach. Section 7 establishes a procedure for making a specific determination with respect to each proposed water resources project."
>
> Mr. Brizee continues: "The evolution of Section 7 demonstrates that Congress did not intend that the Act automatically ban all developments and uses on or near a (study or designated) river. To the contrary, the legislation was specifically amended in order to provide a procedure via Section 7 for review of proposed water resources projects on a case-by-case basis."
>
> Deputy Director Brizee further states, "even though water resources projects will be reviewed on a case-by-case basis, the Act is strict as to what is allowable. This Department and the Department of the Interior have defined "water resources project" in a broad context. That is, a water resources project is any type of construction which would result in any change in the free-flowing characteristics of a particular river... This concept of water resources projects has been applied to dredge and fill permits under Section 404 of the Clean Water Act, construction of levees, removal of navigational hazards, construction of nuclear power plants, and other such diverse projects."

This memorandum also offers an interpretation of the "direct and adverse effect standard":

> "The Department of Agriculture interpreted the "direct and adverse effect" standard, and the "unreasonably diminish" standard in the context of a Section 7 determination for a nuclear power project on the banks of the Skagit W&SR. The discussion in that determination indicates that a flexible approach is possible.
>
> With regard to projects inside the designated boundary, there is no definition provided by the Act or legislative history as to what constitutes such a "direct and adverse" effect. We do not construe this section as a ban on all projects which might be built on a river proposed or designated as a component of the System. Rather, the Act contemplates that each proposed project be considered on its own merits. In making this determination, we consider the values of the river as they now exist; a "direct and adverse" effect is one which will result in marked dimunitions of the values enumerated in Section 1(b) of the Act. Also relevant to the consideration of the project's impacts is the degree to

which it blends in or is otherwise compatible with the natural qualities of the river, whether there may be a dimunition in the air and water quality, and the effects on animals and vegetation. The duration of the impact is another important consideration; long lasting or permanent impacts must be viewed more strictly than temporary or short term impacts."

CONGRESSIONAL DIRECTION

The most recent Congressional direction on management of wild and scenic rivers is associated with the Michigan Scenic Rivers Act of 1991 (H.R. 476) dated November 23, 1991. The Senate Committee on Energy and Natural Resources report on the Michigan Scenic Rivers Act states:

> "The Committee is aware of the concern expressed by some parties of the potential effect that designation of certain rivers as components of the Wild and Scenic Rivers System may have on ongoing stream restoration and improvement projects in the State of Michigan. The Committee notes the importance of these projects in restoring damaged riparian areas and improving water quality and aquatic habitat. In the Committee's view, such projects are not inconsistent with Wild and Scenic River designation, and in fact similar projects have been successfully completed on Wild and Scenic River segments throughout the nation. The Committee directs the Forest Service to develop a consistent and coordinated policy permitting the implementation of such projects within Wild and Scenic River segments in order to avoid unnecessary concern and confusion."

In similar fashion, the House Committee on Interior and Insular Affairs report on the Michigan Scenic Rivers Act states:

> "The committee has provided flexibility with regards to sea lamprey control in order that appropriate management actions can be taken consistent with the requirements of law. In keeping with sound management practices for wild and scenic rivers, the Committee believes there is appropriate flexibility in law to provide for fish and wildlife habitat and water quality improvement in a manner that will protect the values for which a river segment was designated. Some of the finest fisheries in the country are found on rivers designated as part of the National Wild and Scenic Rivers System. The Committee recognizes the importance of the fisheries on the Michigan rivers designated by this Act and is supportive of efforts to correct significant water quality, aquatic habitat or other ecological degradation caused by past human activity. The Wild and Scenic Rivers Act permits structural and non-structural techniques of fish restoration to be used as long as such activities do not have an adverse impact on the values for which such rivers are designated. Such activities consistent with this standard are occurring on wild and scenic rivers across the country. As provided for by law, the Secretary will cooperate with the state on these matters."