United States Department of
Agriculture
Forest Service

Pacific Northwest Region

MONITORING AND EVALUATION REPORT

COLUMBIA RIVER GORGE NATIONAL SCENIC AREA

FISCAL YEAR 2006

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Introduction

We are pleased to present the Columbia River Gorge NSA first Annual Monitoring and Evaluation Report for your review. Since the passage of the Scenic Area Act, the NSA has grown in many ways. Since 1986, we have created and revised the CRGNSA Management Plan in partnership with the Columbia River Gorge Commission, added 36,746 acres of National Forest to the Scenic Area through land exchange and acquisition, established conservation easements, new recreation sites, and developed partnerships with many public groups and agencies. We were in the building phase and are now fully entering the management phase of our mission.

This monitoring report is guided by the Columbia River Gorge National Scenic Area Act as described in the following mission statement and vision for the future:

Columbia River Gorge National Scenic Area Mission Statement
We follow the provisions of the Columbia River Gorge National Scenic Area Act, and the Wild and Scenic Rivers Act to:

- Protect and enhance the scenic, cultural, national recreation resources and W&S River values if the Columbia River Gorge Area for the long-term benefit of the environment and the people,
- Support and protect the economy of the Columbia River Gorge area by encouraging urban growth and allowing compatible development, and
- Work in partnership with the people in an atmosphere fostering openness, understanding and mutual respect.

Columbia River Gorge National Scenic Area Vision Statement for the Future
The Gorge is a world-class landscape of vibrant communities, scenic beauty, cultural treasures, functioning ecosystems and high quality recreational opportunities.
Our vision is achieved through healthy partnerships, our own actions, and engaging the people who live in and/or love the Columbia River Gorge.

The First CRGNSA Monitoring Report
The CRGNSA is moving towards the future using direction from the following:

- Combined Direction of our three Management Plans and the Northwest Forest Plan
- CRGNSA Strategic Business Plan
- Forest Plan and Wild and Scenic River Plans Monitoring Direction
- Management Plan Monitoring Direction for the Protection, Enhancement and Restoration: Scenic, Cultural, Natural, and Recreation Resources

We appreciate your continued interest in the CRGNSA and hope this report is a good start on a dialogue on how to measure the results of our efforts.

Sincerely,

/s/Daniel T. Harkenrider

DANIEL T. HARKENRIDER
CRGNSA Area Manager

Scenic Resources

Introduction

Scenic Resource protection and enhancement in the CRGNSA is based on the following factors:

- The establishment of the Scenic Area boundary which was based on the area seen from within the Columbia River Gorge from approximately Troutdale, Oregon to Wishram, Washington.
- The establishment of 26 Key Viewing Areas (KVAs) which are those portions of important public roads, parks, or other vantage points from which the public views the landscape.
- The establishment of 11 Landscape Settings and Design Guidelines for these landscape settings.
- The establishment of scenic standards that are required to be met from KVAs based on the character of each landscape setting and the land use designation of the landscape setting.
- The establishment of minimum standards that are required to be met from all vantage points within a given landscape setting.

Key Accomplishments

Partnerships

Many of the following accomplishments were achieved in partnership with the Columbia River Gorge Commission, the six NSA counties, the Oregon and Washington Departments of Transportation, other federal agencies, and interested public groups:

- Establishment of 26 Key Viewing Areas and 11 Landscape Settings—1992.
- Monitoring Photos--1988 winter and spring and 2003, winter and spring.
- Seen Area Analysis of Viewsheds from Key Viewing Areas--1992 and updated 2004.
- The purchase by the Forest Service of approximately 1,680 acres of conservation easements in scenically sensitive areas.
- Conservation Easement Development Monitoring—Annually.
- SR-14 Corridor Plan—July 1997, including continuous implementation since that date.
- I-84 Corridor Plan—Nov. 2005-including continuous implementation since that date.
- CRGNSA Sign Plan—1990, update 1999.
- CRGNSA Design Guidelines—Dec. 1995.
- Scenic Resources Report, CRGNSA Monitoring Program—November 2000.
- Scenic Handbook—December 2005.
- Quarry Restoration
- Historic Columbia River Highway Restoration and Trail Reconnections—Ongoing.
- Scenic Resource Technical Assistance and Consistency Determinations—Annually.

2006 Accomplishments

- Implementation of the I-84 Corridor Plan Interagency Committee
- Implementation of I-84 Scenic guidelines for OBDP Bridge Delivery in the CRGNSA
- Conceptual Design for Sandy River Delta Parking Area
- Design input to Lyle Trailhead Design Klickitat Rails to Trails and Eagle Cr. Bike Lane

- Scenic Analyses for Broughton Resort and Burlington Northern Siding Proposal
- Scenic Analyses for Conservation Easement Development Reviews

Key Monitoring Questions

Are Developments or Uses in the NSA meeting the required Scenic Standards?

Are Viewsheds Cumulatively Meeting the Required Scenic Standard from Key Viewing Areas?

Are Landscape Settings retaining their character as described in the Management Plan?

Baseline Inventory for Monitoring Scenic Resources

The Visual Monitoring Point System grew out of the need to record landscape change in the Columbia River Gorge National Scenic Area. Historically, the Forest Service has used fire lookout and other vantage point photography and developed a systematic method of establishing camera points for both analyzing seen area and recording change. *Recording the Changes,* R6-10-095-1982, USDA Forest Service, March 1982 outlined a methodology for establishing camera point systems. Jurgen Hess established a Visual Monitoring Point system on the Rogue River National Forest and from that experience designed the concept for the Scenic Area VMP System in early 1987. The concept envisioned a system of permanent camera points throughout the Scenic Area with periodic re-photographing of the views.

The Baseline Photos were re-taken in the winter and spring of 2003. They will eventually be used in a cooperative monitoring effort with the Gorge Commission, other agencies, and the public. The two photos below are from the scenic inventory photo series. They were both taken in the winter, one in 1988 and one in 2003:

1988-Portion of Viewshed from the Historic Columbia River Highway at Crown Pt.

2003-Portion of Viewshed from the Historic Columbia River Highway at Crown Pt.

2006 Annual Monitoring

- Conservation Easement Development Requests:

GP-203	Skamania	Sharlene James	T1N R5E	17-18	300, 400, 403, 801, 800
GP-209	Skamania	Scott Hall	T1N R5E	18	301, 301-06, 302, 302-06

- Technical assistance and/or oversight of Scenic and Natural Resource provisions of the CRGNSA management Plan: 175 cases reviewed, 8 cases technical assistance on file.

- Management Plan Consistency Determinations for all resources including Scenic:

CD-06-01-S-Rosen Forest Practice	CD-06-09-S-Collins Slide Pond Turtle Habitat Restoration
CD-06-02-G-Burlington Northern	CD-06-10-S-Wyeth House Structure Removal
CD-06-03-S-US Cellular Electronic Site	CD-06-11-S-Mt. Hood NF Invasive Plant EIS
CD-06-04-S-SR-14 Rockfall Mitigation	CD-06-12-S-Gifford Pinchot NF Invasive Plant EIS
CD-06-05-S-Eagle Creek Bike Lane	CD-06-13-S-Trail to Confluence Site on Sandy River Delta
CD-06-06-G-Columbia Hills State Park	CD-06-14-S-Catherine Forest Restoration
CD-06-07-S-Nextel Antennae	CD-06-15-S-Angel's Rest Trail Maintenance
CD-06-08-S-Rowena Forest Restoration	

Special Projects
Scenic Resources Monitoring Report, November 2000
Re-take of the Visual Monitoring Point Photos, Winter and Spring 2003

Monitoring Results and Conclusions

Annual Monitoring

The county planning departments are developing good skills in applying the scenic guidelines to routine projects. There are more large and complex projects each year and fewer small projects requiring Forest Service assistance for scenic resources.

It has been shown through annual monitoring of development in the NSA that foregrounds of KVAs are difficult to manage for scenic resources without conditions pertaining to quality of design. The Forest Service developed new SMA guidelines in 2004 to address this finding.

It has also been shown that interagency cooperation results in projects with fewer issues for county planning offices. Examples of such cooperation occurred with the Beacon Rock Day Use Area, the I-84 Corridor Plan Interagency Team and the SR-14 alternative development procedure for the recent rockfall mitigation projects.

Scenic Resources Monitoring Report-November 2000

Recommendations for Gorge Commission and the Forest Service

- Prepare "visual subordinance handbook"-*completed in Scenic Handbook.*
- Provide training for planners-*was implemented but needs repeating.*
- Collect and distribute information on landscaping and reflectivity-*completed in Scenic Handbook.*
- Update the color photos of the Scenic Area from the visual monitoring points-*completed.*
- Improve adherence to application requirements-*still needs improvement.*
- Develop better procedures to monitor and track compliance-*still needs improvement.*

Cultural Resources

Introduction

The cultural resource program in the Scenic Area is overseen by Forest Service archaeologist and heritage program manager, Margaret Dryden. Dryden has professional qualifications in archaeology, history and architectural history sufficient to manage this program.

Key Historic Cultural Resources on National Forest Lands:
The historical properties in the Columbia River Gorge National Scenic Area include Multnomah Falls Lodge, Eagle Creek Recreation Area, Herman Creek (Cascade Locks) Work Center, Rowland Lake Archaeological Site, and the Historic Columbia River Highway National Landmark which is under multi-ownership with Oregon Department of Transportation.

Cultural Resource Probability Map
The probability map has been in use since 2004. In 2005, we augmented the probability map with a broad inventory of historic buildings (Donovan 2005). Both products have substantially assisted the archaeologist in conducting prefield research.

Key Accomplishments

Forest Service

- Funded Dr. James Keyser to complete scientific write up of the rock art survey he conducted with volunteers in the Wishram vicinity.
- Funded Dr. James Keyser to complete the National Register nomination of Miller Island as an archaeological district. Further work to compile photographs for the nomination is still in progress. When complete, this nomination will add 48 archaeological sites to the National Register of Historic Places.
- Conducted biannual photographic monitoring of pictographs on Miller Island. This was done by contract. This project is a long-term (50-year) study to track the possible changes to pictographs on Miller Island.
- Contracted with the Yakama Nation Cultural Resources Program to conduct a reconnaissance survey for a restoration project in the Collins Slide vicinity. The project area occurred within a low-probability land form for prehistoric archaeological sites. Normally, a survey would not be required but one was conducted to test the probability model. No prehistoric archaeological sites were documented. Two new historic sites were recorded and two known historic sites were monitored before and after implementation of the project. While some slash piling occurred within the buffer of one site, the piles were not burned and there was no damage caused by the piling.
- Contracted out additional shovel testing and site report writing for forest service lands in the Cascade Locks vicinity. The project area occurs within a low probability zone and a reconnaissance survey would not normally be required. However, part of the project area occurs within 100-feet of a high probability zone (urban area) and a reconnaissance survey was triggered and completed in fy2005. One prehistoric archaeological site was located and in 2006 additional shovel testing was conducted to further refine the site boundary.

- Heritage Program Manager presented a professional paper at the annual Northwest Anthropological Conference on the Klickitat Village site near Lyle, WA. In 2005, during project implementation monitoring, the archaeological technician noted cultural materials within an area approved for construction. The paper presented at the NWAC documented the damage assessment conducted by the NSA. "No adverse effect" to the archaeological site was found.

Key Monitoring Questions

Are sites being Affected by Natural or Human-caused Processes?

Have Sites been Adversely Affected by Disturbances

Are Previously Undocumented Sites Discovered During Project Reviews?

- Monitoring of cultural resources includes: on the ground surveys prior to proposed actions to discover and document previously unrecorded sites.

- Monitoring of proposed actions as they are implemented to be certain that cultural resources are not damaged.

- Monitoring of known cultural resources to observe changes in the site that may be of concern.

- Monitor archaeological work conducted on behalf of large-scale undertakings to be certain that the contractors are qualified to do the type of work being requested, that the field design is sufficient to meet the needs of the project proponent, and to review the final report to be sure that it complies with the Management Plan.

Interagency Monitoring

Some sites located along the shoreline of the Columbia River upstream from Bonneville Dam and downstream from the confluence of the Deschutes River are monitored by the Army Corps of Engineers through the FERC program with the Bonneville Power Administration. Tribal cultural resource departments were contracted in 2006 to conduct annual site monitoring, inventories, and write Historic Properties Management Plans. Many of these sites are under jurisdiction of the Forest Service, such as the Miller Island sites, or are protected through the National Scenic Area Act.

Forest Service Monitoring

Volunteer Stewardship Monitoring Program

Volunteer from OAS Site(s) assigned for Monitoring

Nine volunteers through the Site stewardship program performed monitoring trips to the following 18 sites on National Forest lands:

45K325, 45KL643, 45KL647, 45KL647, 664EA43-47, 664EA15-17 and 12

06225104045, 45KL648, 45KL686, 664EA30 and 664EA31.

Monitoring Results and Conclusions

Monitoring during 2006 resulted in two tests against the probability model that was adopted for use in the National Scenic Area. One survey of a low probability area located no prehistoric archaeological sites, as predicted by the survey design. Another project was located in a low probability area (but within 100-feet of a high probability area) and a prehistoric archaeological site was discovered. This was also predicted by the survey strategy.

A long-term monitoring project of pictograph sites on Miller Island continued with no obvious changes noted to the images.

Project monitoring located cultural material being exposed during construction. Although we were aware of the archaeological site, we designed the project to follow a previously existing farm road. Project monitoring resulted in the identification of a "gap: in the farm road that was unexpected. Subsequent site analysis demonstrated that the "gap" area was previously disturbed and that construction work had caused no adverse effects to the site.

General site monitoring was accomplished by use of Forest Service volunteers, contractors, as well as forest service personnel. Seventy site visits were documented during 2006.

2006 Cultural Resource Accomplishments

Archeological Identification and Evaluation [This section includes Section 106 undertakings and activities under Section 110 of NHPA and ARPA conducted on federal and non-federal land and performed or funded by agency or non-agency entities in the reporting year.]

175 Number of projects for which there were database and file searches, literature reviews and map checks that resulted in a file letter, report, or other documentation

PRIVATE	USFS	TOTAL
155	20	175

5 Number of field studies to identify and evaluate archeological sites

729 Number of acres inventoried in the reporting year

PRIVATE	USFS	TOTAL
293	435	729

31 Number of archeological sites identified in the reporting year

PRIVATE	USFS	TOTAL
17	14	31

0 Number of archeological sites determined eligible for the National Register of Historic Places (NRHP) by the Keeper or through documented consultation with the SHPO in the reporting year

28 Number of archeological sites on agency managed land that were stabilized, rehabilitated, monitored, or protected (e.g. anti-vandalism signs, fences, road

closures) in the reporting year. [Report each archeological site protected only once. Do not include sites avoided during a Section 106 undertaking]

One house on private land in Hood River County was documented to resolve adverse effects.

Annual Monitoring

1.			2006		
2.	10/17/05	Pvt	45KL461	Dryden	Monitor reveg after fire
3.	10/17/05	Pvt	35WS289 Murray's Quarry Site	Dryden	Monitor vandalism report-no damage. Coord. w/SHPO
4.	10/24/05	USFS	35MU76 Fir Point	Dryden	Monitor-okay no big changes
5.	Oct. 20, 2005	USFS	BV rr grades 1 664ea15	Satterthwaite and Gibson 2 @ 8 hrs each	Monitored- sent form and photos
6.	Oct. 20, 2005	USFS	BV rr grades 2 664ea16	Satterthwaite and Gibson Counted with above	Monitored- sent form and photos
7.	10/27	USFS	Mult. Falls Lodge	Dryden	Monitor project lift water tank. Photos & mssg to shpo
8.	Nov. 2, 05	USFS	Eagle Creek Campground	Dryden	Documented EC campground
9.	11/17/05	ACE	45KL757 (HTSP) Burial	Dryden, Meatte, Rader, Kiona & Scott	ACE lead, they took photos
10.	Nov 8, 05	USFS	Eagle Creek CG	Dryden	Monitored 2004 project & rephotoed
11.	Jan 14, '06	USFS	Rowland Basin Site 45KL327	Bus Gibson, OAS Site Steward 8 hours with travel	Monitored 8 hr. incl travel from Portland
12.	Feb 06	Private	West Larsen Site	Marge	Discovered
13.	"	"	"	"	Shovel testing
14.	"	"	"	"	Shovel testing
15.	"	"	"	"	Shovel testing
16.	Feb 06	Private	Sady Site	Marge	Discovered
17.		"	"	Melissa Darby	Shovel Testing
18.		"	"	Melissa Darby	Shovel Testing
19.		"	"	Melissa Darby	Shovel Testing
20.		"	"	Melissa Darby	Shovel Testing
21.		Private	Mayerdale House	Marge	Inspection for LOE
22.	2/15/06	Private	Nicholson House	Marge	Recorded and evaluated NE
23.	3/28/06	Private	Historic barn	Marge	Record and level of effect
24.	04/05/06	ACE	Memaloose Is.	Marge/Mike Martin, Steve Jenevein, Shane Scott and Greg Kiona	Site stabilization
25.	April 06	Private	West Larsen Site	Alex Gall	Site evaluation & shovel testing
26.	April 11, 06	Private	Nuckoles Barn	Marge	Level of Effect Noted shed roof over door fell down

27.	4-19-06	Private	Trautwein Site 35HR55	Marge	Trailer removed-prework for irrigation maintenance. Site okay
28.	4/3/06	Private	Hist house	Marge	Record and evaluate NE
29.	5/2/06	ACE	35WS17	Marge	Photos from SR14 monitor site stabil. Email to ace/ctws
30.	5/2/06	Private	Hist house ska-05-66 52101 Hwy 14, Home Valley	Marge	Record site
31.	4/27/06	Private	Prindle School ska-94-050	Marge	Photos taken complete site form and for Level of Effect
32.	5/01/06	Private	Hist house Klick-06-011	Marge	Record site
33.	4/27/06	USFS	35mu76	Marge	Monitor trip site inaccessible, checked fence
34.	4/27/06	USFS	No site project monitor for confluence backhoe test excavation	Marge	Monitor ground dist. At SRD
35.	5/14/06	USFS	664ea59	Joe Ward-OAS 8hrs counting travel	Monitor/rept and photos
36.	5/14/06	USFS	Wyeth House	Joe Ward – OAS included with above	House broken into and ransacked-Marge notified LE-house eval not eligible
37.	5/10	Private	Austin house 5982 Hwy 30 Rowena	Marge	Record site
38.	5/10	Private	45kl439—walker-bond new construction	Marge	Monitor new construction and buffer--okay
39.	5/13/06	USFS	45KL641	Marge	Monitor no new ground disturbance no pics.
40.	5/28/06	USFS	06-22-52-04-045	OAS Dolan and Blosser	Monitor with sketches and photos, site is okay
41.	6/5/06	Private	45KL666	Marge	Damage done by landowner-notified YN and DAHP
42.	6/15/06	Private	35hr55	Marge	Monitor irrigation pipe replacement
43.	6/16/06	Private	35hr55	Marge	Monitor irrigation pipe replacement
44.	6/21/06	USFS	45KL548	Marge	Monitor pictograph after Maryhill fire
45.	7/3/06	USFS	35MU76	Marge	Okay, fax memo written
46.	8/04/06	USFS	Mtn Glade HP usfs1313	Marge	Monitor brush piling doc in colins rept
47.	8/4/06	USFS	Leist HP 2006-06-22-20a	Marge	Photos, doc in Collins rept
48.	8/4/06	USFS	Rock feature 2006-06-22-20b	Marge	Photos, doc in Collins rept
49.	8/11/06	WSPRD	Colum-Northern RR 45KL951	Marge	Finding of effect-outside buffer no effect (Jamis)
50.	8/17/06	USFS	Multnomah Falls Lodge	Marge/Poyser	Tour with Fed. Highways-prelim visit prior to roofing
51.	8/17/06	ODOT/USFS	HCRH	Marge/Poyser/Fed Highways/ODOT	Monitor and review gutter restoration project and Oneonta Tunnel restoration

52.	8/22/06	Private/FS	45SA1	Marge	Checked petroglyph on private land. Looks okay
53.	08/29/06	FS	35mu76	Marge	Checked site area, took photos, check beach, dune and fences. There is also weekly monitoring/patrols for the beach and area closure by our FPOs.
54.	8/16/06	Fs	35mu53	Satterthwaites-OAS volunteer stewards	Photos and report, some stacking of rock by fishermen
55.	8/16/06	FS	664EA15	Satterthwaites-OAS volunteer stewards	Report and photos
56.	8/16/06	FS	664EA16	Satterthwaites-OAS volunteer stewards	Report and photos
57.	8/16/06	FS	664EA17	Satterthwaites-OAS volunteer stewards	Report and photos
58.	9/25/06	FS	35MU72	Dryden-monitor and special maintenance	Report and photos
59.	Various March-May	FS	Catherine creek 1	Mike Dryden	Discover and record
60.	Various March-May	FS	Catherine creek 2	Mike Dryden	Discover and record
61.	Various March-May	FS	Catherine creek 3	Mike Dryden	Discover and record
62.	Various March-May	FS	Catherine creek 4	Mike Dryden/marge	Discover and record
63.	Various March-May	FS	Catherine creek 5	Mike Dryden	Discover and record
64.	Various March-May	FS	Catherine creek 6	Mike Dryden	Discover and record
65.	Various March-May	FS	Catherine creek 7	Mike Dryden	Discover and record
66.	Various March-May	FS	Catherine creek 8	Mike Dryden	Discover and record
67.	Various March-May	FS	Catherine creek 9	Mike Dryden	Discover and record
68.		Private	Historic house	Marge Dryden and sally Donovan	Record and data recovery
69.	Dec 2005	FS	Sandy river diversion dam	Sally Donovan	Data recovery
70.	Feb 2006	State	Stark Street Bridge	Marge	Finding of effect

Natural Resources

Introduction

The Gorge was chiseled by a dramatic series of floods, known as the Bretz floods, about 10,000 years ago. These floods created the dramatic basalt cliffs, waterfalls, and steep mountains sides of the Gorge as we see it today. The Gorge acts as a low elevation east-west corridor through the Cascade Mountain chain. On the west side, rain fall varies between 30 and over 100 inches/year, supporting vigorous conifer forest communities. On the east side of the Cascades, rain fall drops from over 100 inches to under 10 inches/year within 40 miles. The conifer communities transition to oak/pine communities and finally become grass-steppe near The Dalles. As a result of all of these factors, the Gorge contains a diverse set of vegetation communities underlain by a diverse topography together providing a diversity of habitats for a large variety of plants and wildlife.

5 Year Plan for Fire Resilient Landscapes

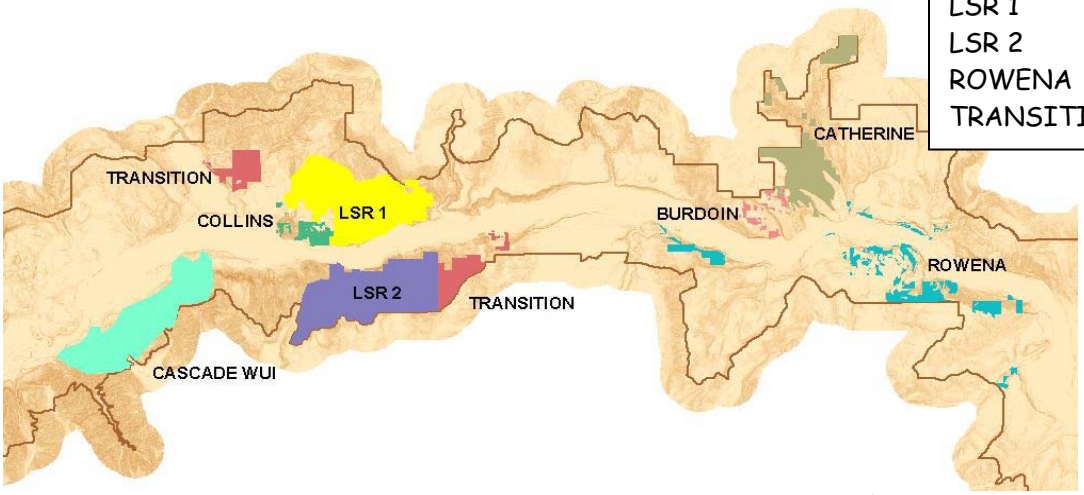
Fire was the primary disturbance process affecting vegetative patterns in the Columbia River Gorge. Disturbance regimes, or fire frequency and intensity patterns, range from fast moving ground fires every 3-5 years on the east end, to stand-replacing crown fires on the west end, occurring on a 300-500 year cycle. Home construction across the landscape dictates aggressive fire suppression efforts, given the high wind patterns typical in the Gorge. The consequent fuels accumulations have created a highly volatile situation.

There are approximately 25,000 acres of National forest in the CRGNSA at risk for losing key ecosystem components or located within a wildland-urban interface. These areas were divided into treatment areas from 2,000 to 6,000 acres in size for purposes of prioritization, planning, collaboration, and development of a variety of implementation options. The maps below depict the condition of the NFS lands and the proposed treatment areas:

The table on the next page summarizes the condition and restoration priority for other important ecosystem components.

The table on page 17 summarizes restoration accomplishments and completed monitoring.

TREATMENT AREA ACRES	
BURDOIN	137
CASCADE WUI	5200
CATHERINE	3200
COLLINS	1500
LSR 1	6100
LSR 2	5900
ROWENA	2300
TRANSITION	2100



ECOSYSTEM RESTORATION PRIORITY SCHEDULE

September 2007

Important Ecosystem Components	Score	Elements Determining Priority H=3, M=2, L=1				FUNCTION/CONDITION Disturbance Mechanisms H=1, M=2, L=3
		Threat	Uniqueness	Linkage to Ecosystem	Improvement Capability	
Native Grasslands	15	H Lots of Invasive species, private land	H Very little left	H	H	Almost total conversion to non-natives. Missing in landscape. Fire, agriculture are primary disturbance regime. Natural disturbance regime is 0-35 yr fire frequency, stand replacement severity. Function - L Score - 15
Remnant Columbia Bottomlands	13	M From introduced plants and animals	H Very few areas like this	H	M	Function is poor and heavily degraded from anthropogenic impacts. Invasive species, recreation and altered water flow regimes are the biggest impacts. Flood regime. 35-100+ year fire frequency; ;mixed severity. Function - L Score - 13
Anadromous Habitat (Includes WSR)	13	M Mainly Barriers	H Downstream of Hood River (# of coldwater streams)	H Food Chain, Social values	H Permanent Solution	Function not good because of human blockages (roads, railroads diversions). Overall fair condition. Improving trend. Floods, debris flows, fire primary disturbance. 35-100 and 200+ fire frequency; mixed/stand replacement severity. Function – M. Score - 13
Chum Salmon Habitat	12	M Unlikely new develop-ment on chum streams	H Only on 2 streams	L Food Chain, Social values	H Big payoff	Functions not good because of human blockages (roads, railroads diversions, settlements). Overall poor condition. Flat trend. Floods, debris flows, fire primary disturbance. Function – L. Score - 12
Low Elev. Oak Transition Zone	12	H Due to fire and human conversion	H Very few areas like this; endemics	M	M Not permanent fix, always maintain	Functions marginal and fragile due to fire exclusion, conversion to Ag lands. Higher fire frequency than other gorge areas, but still natural fire regime. 0-35 yr fire frequency, stand replacement severity. Function - M Score - 12
Late Successional Habitat (coniferous trees > 200 years)	12/ 10	L All protected	H	H Western Cascades L East Side (no conifer)	M More self maintaining than the oaks	It is missing. Very little of it left. Logging, fire are primary disturbance regime. Natural disturbance regime is 200+ yr. Fire frequency, stand replacement severity. Function - L Score - 12
Oak Transition Zone (Includes WSR)	11	H Due to fire and human conversion	M Very few areas; not as unique as low elevation	M	M Not permanent fix, will always maintain	Functions marginal and fragile due to fire exclusion, conversion to Ag lands. Higher fire frequency than other gorge areas, but still not natural fire regime. 0-35 yr fire frequency, stand replacement severity. Function - M Score - 11
Low Elevation Ponds	11	M From introduced plants and animals	M Found in many other places	M Localized	H	Functions good but fragile. Disturbance due to beavers, landslides, human constructed, high water table in floodplain. Function – H Score - 11
Columbia Corridor	11	L Damage already done	H Low elevation Cascade corridor	H	L Highly variable	Functions well for people at the expense of natural resources. Scenery wise it is functioning poorly. Lots of noise. Flooding primary natural disturbance regime. Function – L for wildlife. Score - 11
Cliffs and Talus Slopes	11/ 7	M Along Highway L Everywhere else	H	L	M Along highway L Elsewhere	Functions not good near human corridors but good away from these areas. Talus flow interrupted near human corridors. Function – L along highway; H everywhere else. Score - 11
Early Successional (conifer trees< 60 years old	10	M It will be missing in future	L	M Patch network, but important	M Similar to oak	Not natural. No succession of vegetation - not moving spatially on the landscape. Logging, fire, agriculture are primary disturbance regime. Natural disturbance regime is fire; 35-100 and 200+ frequency; mixed/stand replacement severity. Function - L Score - 10
Significant Natural Areas	8	L All protected	H	L Isolated	L Some local high opportunities	Areas vary widely in location and setting. They are protected public ownership and zoning. Function – M. Score - 8
Mid-successional (conifer trees 60 to 80 years old)	8	L Lots of this habitat.	L	M	H	Prevalent. Logging, fire are primary disturbance regime. Natural disturbance regime is fire; 35-100 and 200+ frequency; mixed/stand replacement severity. Function - H Score - 8
Above Waterfall-Genetic Resident Refugia	7	L High up in Watershed	H Pure stocks rare	L	L Doesn't need improvement	Not fully functioning due to riparian areas early/mid seral stage. Overall good condition, improving trend. Floods, debris flows, fire primary disturbance. 35-100 and 200+ fire frequency; mixed/stand replacement severity. Function -H Score-7
Trans-Columbia Corridors	5	L	L	M Narrow river part. Needs study.	L	Not proven to have functioned as a travel corridor. 35-100+ fire frequency; mixed severity. Score - 5

Summary of Key Ecosystem Restoration and Monitoring Accomplishments by year.

Year	Sandy R Delta	Invasives	Acorn	Thinning	Quarries	Artemisia
1996	Neotropical bird monitoring	Hood River, Wasco, Klickitat Counties complete weed treatment and monitoring	--	--	Restoration of pit completed at Klickitat-Balfour	--
1997	Neotropical bird monitoring Planted 7 acres w/volunteers. Water control structure constructed	Hood River, Wasco, Klickitat Counties complete weed treatment and monitoring		--	Restoration at Klickitat-Balfour for flood damage. Restoration at E. pit begins. Site prep.	
1998	Neotropical bird monitoring Maintained 7 ac and planted 7 acres w/volunteers Ponds disced, control of RCG not good	Hood River, Wasco, Klickitat Counties complete weed treatment and monitoring		--	In fall, planting trees, native grasses, etc at E, pit. Transplanted *P.barrettiae*.	
1999	Neotropical bird monitoring Maintained 14 ac, planted 34 ac. Drought- ponds did not fill. Deepened ponds.	Hood River, Wasco, Klickitat Counties complete weed treatment and monitoring		--	More plantings at E. pit and monitoring of all previous plantings. Planted wetland plants along pond.	
2000	Neotropical bird monitoring Maintained and planted 80 ac. Site prep 130 ac. Ponds filled, but held water only through June.	Hood River, Wasco, Klickitat Counties complete weed treatment and monitoring		--	Monitoring continues with weed treatments.	
2001	Maintained and planted 100 ac. Site prep 90 ac. Deepened ponds again.	Hood River, Wasco, Klickitat Counties complete weed treatment and monitoring		--	Monitoring continues with weed treatments. Native grasses and trees doing well on better soils. On rocky soils restoration is weak.	
2002	Maintained and planted 165 ac. Site prep 115 ac. Pilot planting (60 ac) established. Wetl. plants get established. Spray around ponds.	Hood River, Wasco, Klickitat Counties complete weed treatment and monitoring		Burdoin I completed 200 ac thinning (< 8" dbh)	Monitoring continues with weed treatments	Collected data

Year	SR Delta	Invasives	Acorn	Thinning	Quarries	Artemisia
2003	Maintained and planted 290 ac. Site prep 57 ac. Abandonned early plantings. Pilot expanded additional 60 ac. Seeded native grasses prior to trees. Monitoring showed excellent growth. Plant around ponds. Disc 10 ac of pond PSU wetl. Veg. monitoring	Hood River, Wasco, Klickitat Counties complete weed treatment and monitoring		--		Collected data

Key Monitoring Questions

Are Standard and Guidelines effective in meeting State Water Quality Standards for turbidity and temperature?

Are Standard and Guidelines effective in meeting State Air Quality Standards?

What are the best methods for revegetation and restoration of disturbed areas such as quarries?

Will thinning stands containing Oregon oak improve this habitat type?

How is the population of species dependent on Oregon oak habitats related to acorn production?

What is the best method for removing invasive plants and replacing with natives?

How viable is the CRGNSA artemisia population?

Monitoring Results

Water Quality: Temperature and Turbidity

The Scenic Area measured summer water temperature at 11 sites during FY06. A few of these monitoring sites were on streams listed as water quality impaired for temperature under section 303(d) of the Clean Water Act. The other portion includes monitoring related to specific forest management or trend stations designed to monitor long term temperature trends. Two of the sites were on lakes or ponds. Of the 11 sites measured for temperature, 3 showed temperatures exceeding state standards. Spikes in temperature occurred on June 28th, July 4th, July 9th, July 24th, August 7th, August 21st, and August 27th at all CRGNSA monitoring sites this year with maximum water temperatures occurring in the last 2 weeks of July. This is has been fairly typical of past summer water temperature monitoring in the CRGNSA.

This monitoring question is also concerned with water quality as measured by turbidity levels. Scenic Area personnel rely heavily on real-time data provided by USGS gauging stations across the area. Also, aquatics personnel do project specific monitoring of turbidity where sediment is an issue. No site specific turbidity monitoring was completed during 2006.

Following are tables showing all results from water temperature monitoring in 2006. The sites have been split up between Washington and Oregon due to having two different sets of water temperature standards.

2006 Stream Temperature Summary for Oregon streams in the CRGNSA.

Water body Name	Days Deployed	Days Exceeding State Standard	7-day Avg Max ^{o}C
Benson Lake	174	N/A	27.4
Eagle Cr Lower	Equipment Malfunction		
Eagle Cr Middle	Equipment Malfunction		
Eagle Cr Upper	Equipment Malfunction		
Multnomah Cr	123	0	18.9
Lower Multnomah Cr	174	62	27.1
Upper Multnomah Cr	Equipment Malfunction		
Wahkeena Cr	174	0	13.0

N/A – No state temperature standard for this water body.

2006 Stream Temperature Summary for Washington streams in the CRGNSA.

Water body Name	Days Deployed	Days Exceeding State Standard	Max 7-day Avg ^{o}C
Harvey Pond	132	N/A	24.3
Lower Major Cr	113	80	23.8
Woodard Cr	69	7	16.3

N/A – No state temperature standard for this water body.

Air Quality:

There are two phases of air quality monitoring currently going on in the Scenic Area. The first is the long-term visibility monitoring that we has been occurring for the past decade. The second is a continuation of the fog water monitoring study that was completed a couple of years ago.

Visibility Monitoring

- Forest Service is doing this at 2 sites – Mt. Zion at the west end of the Gorge and Wishram at the east end of the gorge. It is a cooperative effort with the Washington State Dept. of Ecology and SW Washington Clean Air Agency.
- Taking visibility pictures at Wishram, nephelometer measurements (amount of light that can pass through air sample) at both stations, National Atmospheric Deposition Program (NADP) (acid rain and other parameters) measurements at Mt. Zion, ozone sampling at Wishram, athalometer (Carbon) sampling at Wishram and aerosol samples (IMPROV sampling) at both stations.

Continuation of Fog Water Study – this effort is an attempt to answer questions that arose from the fog water study that was completed a few years ago. The monitoring period is from November through August.

- 6 sample sites spread throughout the gorge collecting rain that is falling through the trees and bulk rainwater samples. These will be analyzed for pH and other ions in an effort to determine potential concern over acid deposition as well as concern over nitrates, ammonium and sulfates.
- Soil samples will be collected at these 6 sites to determine if there is nitrogen saturation in the soil from pollution at these sites. Excess nitrogen impedes vegetation growth.
- Sampling will take place during the summer which was one of the criticisms of the original study (original study only occurred during the fall/winter).
- 3 sites will also sample for "dry" deposition of potential pollutants including nitrogen and sulfur.
- This effort will help get at whether pollution is from particulates (suspended in water and/or dust) and/or whether the pollutants are in the form of gasses that are derived directly from the pollution sources.
- In addition, lichen samples will be taken at these sites which provide an additional indication of potential pollution.

Results of these monitoring efforts are in the process of being documented at this time.

Sandy River Delta Restoration.
The restoration efforts at Sandy River Delta were designed to restore the riparian gallery hardwood forest on Sundial Island (about 550 acres) and portions of Thousand Acres while retaining about 300 acres of open prairie and wetlands in the southern portion. The restoration work began in 1997 and is fully documented in annual reports completed up till the present. In these reports, the work done is summarized and documented with monitoring photos along with recommendations for any adaptive changes to the restoration methods.

The wetland work was commenced in 1997 with construction of water retention structures and deepening of the wetland areas. The wetland was located in areas with appropriate hydrological conditions to ensure proper functioning wetlands. Although many diverse wetland plants have become established, invasive reed canary grass still plagues the wetlands today.

Wetland area prior to commencement of restoration work.

Wetland area in 2005 after initial wetland restoration.

The rationale for this desired future condition largely evolved from the continued loss of hardwood riparian forests throughout the lower Columbia and continued decline in suitable habitat for many neo-tropical bird species. The establishment of a wetland relates back to the mention of a large wetland in the SRD by Lewis and Clark. After several years of exploratory work, the area with the best hydrology was located near I-84 and work was commenced in cooperation with Ducks Unlimited in 1998. As indicated above, the initial work aimed to retain as much water on site as possible with the construction of water control structures. This was followed with deepening of the wetland areas and the subsequent establishment of wetland flora.

The re-forestation work commenced in 1997 after the EIS was completed. Our initial approach to the restoration emphasized the concept of being "light-on-the-land", using volunteers to plant trees into the grassy, open areas. The first 2-3 years were plagued by severe deer browsing, girdling by voles, and competition with the grassy under-story. Weeding, weed mats, wire cages and other preventative measures were implemented, but maintenance costs were becoming exorbitant and after the third year it became apparent that a new approach was required.

This photo was taken in 2003. The tree was planted in 1998 and was still struggling to get established after being heavily damaged by deer browsing and girdling by voles. It had grown only about 4 inches during the 5 year period. Many other trees were dead and equally stunted. In 2004 this planting was abandoned and is presently being replanted using the current methods as described below.

In 2000 larger trees were planted in rows to permit tractor mowing. The larger trees were used to get above the deer browsing and fences were placed around individual trees to protect them. This too proved too costly and required too much maintenance. The growth response was in – adequate and maintenance costs were projected to be far too high.
In 2002 a new approach was initiated. This involved abandoning the "light-on-the-land" and taking a more aggressive approach. With herbicides and large tractors, the ground was treated to eliminate all vegetation. Tractors were used to till the land, discing and spraying to eliminate all vegetation. After a year fallow with several treatments to eradicate blackberries and reed canary grass, the trees were planted into the bare soil in rows to permit easy mowing and maintenance with tractors. The tree growth response was very encouraging, but weed control and maintenance was still too high.

The above photo was taken in 1997 and can be contrasted to the lower photo taken in 2007. Note the absence of blackberries, reed canary grass in the 2007 photo.

The trees on the left were planted in 2004 and those to the right in 2005.

This approach was subsequently modified by seeding the treated ground with native grasses to help reduce weed control. By 2007, the results of these new methods were finally becoming clear. Black cottonwoods that were 4 years old had grown to over 20 ft in height and were very vigorous. Maintenance efforts were essentially no longer needed after 4 years and a native under-story had been established along with the forested species.

Trees (and native grasses) planted in 2003 were over 20 ft tall in 2007 and further maintenance was abandoned.

Tree growth was monitored throughout these years to collect data to illustrate the effectiveness of the various approaches that were implemented. A brief summary of such data is shown below.

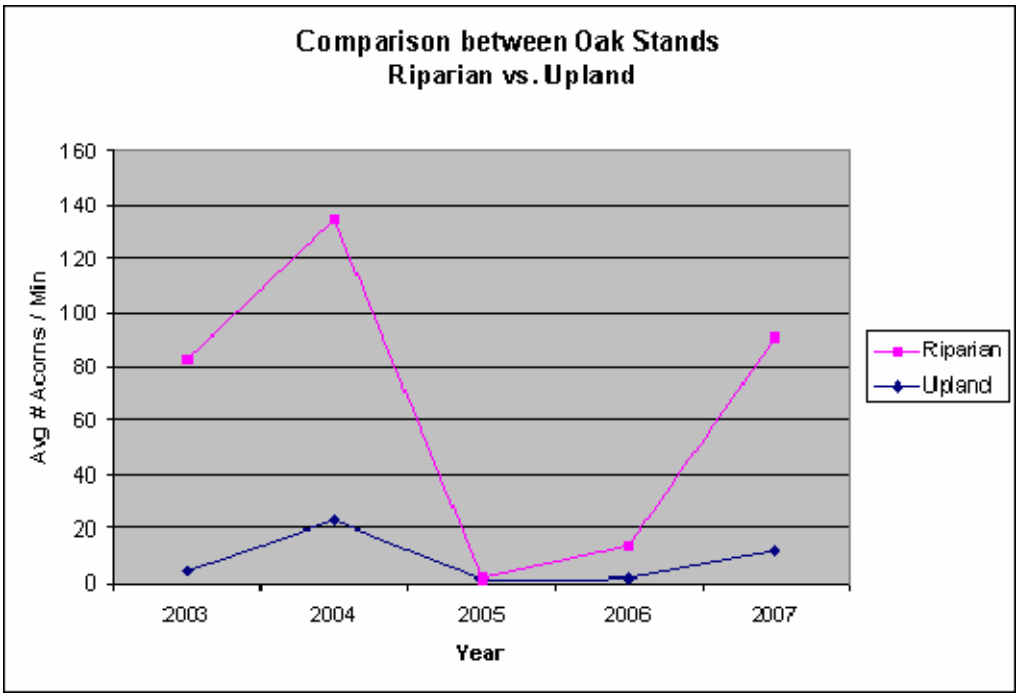
Tree planting approach	Tree species	Initial height (ft)	Change in height after 2 years. (ft)	Change in height after 3 years (ft)	Other concerns	Long term
Initial plantings using "light-on-the-land" approach. No vegetation clearing was done.	Cottonwood	2	2.5	3	*Heavy browsing *High mortality *Low vigor *Maintenance costs too high *Under story still weedy	Planting abandoned.
	Ash	2	2.5	2.6		
Plantings of large tree stocks with no vegetation clearing.	Cottonwood	7	10	11	*High mortality *Low vigor *Maintenance costs too high *Under story still weedy	Planting abandoned
	Ash	6	9	8		
Tree plantings into tilled vegetation-free soil seeded with Native grasses.	Cottonwood	5.7	12	16	*Low/Mod mortality *Good vigor *Maintenance costs reasonable. *Native under story	Planting system is viable.
	Ash	3	4	6		

The evidence and data suggests that the best method for restoring hardwood riparian forest were to use the more recent methodology as described above.

For more details, it is recommended that the reader request copies of the annual reports.

Oregon Oak Acorn Survey

In cooperation with research efforts, the CRGNSA collects data on acorn production at specific sites within the Scenic Area. The data is collected annually and maintained by the PNW Research Lab in Olympia. The data summarizes acorn production throughout the Northwest and is being used to help understand the population changes of species dependent on the mast crop. As is well known the Oregon white oak does not produce a uniform mast crop; indeed the production can vary from almost none to very abundant acorn years. Furthermore some trees nearer water source appear to be more consistent in their production. These swings in mast supply have dramatic effects on such species as the Lewis' woodpecker, which in poor acorn-years, will migrate south to California where there are many different kinds of oaks with a more consistent supply of mast. The Lewis' woodpecker is a good example of a species that is declining and understanding its food supply can help determine how to maintain its population.



Note the wide variation in acorn production in Riparian areas and less production in the Upland trees.

Oak thinning

Oak woodlands are a very important habitat in the Scenic Area and support a very large diversity of animal and plant species. As a result maintaining a healthy oak habitat becomes an important goal. With the suppression of natural fires, the oak habitat has been slowly becoming more dense and encroached upon by invading conifers, mainly Douglas fir. While fire used to naturally thin out the oak stands and eliminate encroaching Douglas fir, the absence of fire has required more active management in thinning these woodlands mechanically with the hope of re-introducing natural fire. We initiated and completed an EA detailing how we would thin the oak woodlands on Burdoin Mt., Catherine Creek, and Rowena.

The picture at left is present condition in 2007. This stand might appear as picture on the right had fire not been excluded. Thinning will help achieve this.

Picture above shows a typical oak woodland in the Catherine Ck. Area.
Photo to the right shows how this oak woodland would look with frequent low intensity fires and with some oak thinning as a result of the

Oak Thinning Monitoring Plots

Thinning oaks has not been studied in detail and little information exists. As a result, several different monitoring efforts have been commenced in the CRGNSA to begin to identify the benefits and/or pitfalls of thinning. The first was to establish some small plots to measure the response or effects of thinning on the oaks. This included measuring the changes over time in the number of trees, their DBH and crown size, and changes in mast production. In addition, photo points have been established in many of the thinned woodlands to monitor the effects of removing the encroaching Douglas fir and the light thinning of the oaks themselves. The initial

photos have been taken, but subsequent photos are not yet scheduled to be taken for a couple of years.

Invasive Plants
The invasive plant monitoring is accomplished both by the Forest Service and by the county weed specialists who likewise are the licensed applicators for herbicide treatments. The monitoring is completed on an annual basis and the results are used to help determine where herbicide or other treatments are required for the subsequent year. Other monitoring, such as locations of new infestations, size, species, etc is now entered into the FACTS data base, a Federal depository for tracking information. This data base includes spatial and qualitative data.

Many of our most troublesome invasives, such as yellow star thistle, has shown dramatic reductions due to bio-control release. Yellow star exploded about 12 years ago and was considered impossible to deal with; but with the help of Klickitat County, bio-control agents were released and the spread and density of this weed fell dramatically. We continue to monitor this weed carefully and were anticipating a re-surgence, which did occur in 2006-7, but to a lesser degree than expected. Another difficult weed that is being carefully monitored is knotweed. We are anticipating that when the Invasive Plant EIS is finalized, action on this weed will be a high priority.
Infestations of high priority were identified in the Invasive Plant DEIS in 2005.

East Pit and Klickitat-Balfour Quarry Restoration. Hood River County in cooperation with the Forest Service agreed to abandon its operation of the east pit rock quarry in exchange for equal value in timber land elsewhere. The rock pit was then restored with native flora. Monitoring continues to evaluate the effectiveness of this restoration and new ideas are continually tested on this site to help determine how best to establish the native under-story in heavily infested non-native systems.


East pit before any restoration activities in 1996

The initial restoration was considered quite successful, although establishing native grass/herbaceous habitat has been problematic due to the aggressiveness of the non-natives and very droughty soil conditions.
The Klickitat-Balfour site is across the Columbia from the East Pit but has some of the same characteristics. The pit was not a rock pit but a gravel pit and the restoration here was far more positive in getting the native bunch grasses established. Even at the Klickitat-Balfour site, we are still struggling with invasive plants such as yellow star thistle. Presently, our efforts are to restore other portions of the site with the native under-story (bunch grasses, balsamroot, lupines etc), oaks and pine. This effort is in progress and should be completed in 2009.

Photo of the Klickitat-Klickitat-Balfour site prior to Forest Service acquisition in 1996

Photo of the Klickitat-Klickitat-Balfour site in 2006 after removal of all homes, restoration of gravel pit

On both sites, photo points were established to show over time how well the restoration worked. Initial plantings are usually impressive, but the long-term establishment of the native flora is a long term effort. In both sites newer techniques with the use of micro-blend mulch have been explored with mixed results. This method is very expensive and although it appeared to work very well at east pit, it did not at the Klickitat site. The use of micro-blend may be more suitable for very harsh sites, such as a rock pit, where there is virtually no soil. At the Klickitat site hydro-seedling and the use of no-till drill will be attempted in the fall of 2007.

Area shown by arrow was seeded with microblend.in 2005.

The development of suitable techniques is critical in helping our efforts in establishing the native floral under-story in many habitats within the Gorge, where such habitats have been severely degraded and infested with non-native species. This work, in cooperation with Columbia Land Trust and BLM, is also being examined in helping to restore the native under-story in the oak/pine habitats.

This photo exemplifies what a natural healthy under-story should look like.

Artemisia Monitoring

Artemisia campestris var worskioldii, Northern wormwood, is only know to exist at two locations in Washington State, both along the Columbia River. This plant has been petitioned for listing with the US Fish and Wildlife Service. In cooperation with the WA State Heritage Program, we have been monitoring for 5 years one population that is found on Miller Island. Each year plots are re-established and total numbers of plants are recorded along with data on seed set, flowering stems, vigor, recruitment, and other important features related to viability.

This data is analyzed by the Heritage Program. The hope is to compile the data and complete a conservation assessment document.

This species is rather unique in that, unlike other Artemisia, it flowers in the spring. It is assumed that this species likely inhabited the sand/gravel bars that were formally a frequent habitat along the Columbia prior to the dams. As a result of the dams, this habitat has virtually disappeared and with it this plant. The population at Miller Island is not faring well and has been decreasing over time. Fortunately the other known population in Grant County is doing better. This monitoring effort is helping to give us the information required to make future decisions on how to maintain this species.

Artemisia campestris var. worskioldii

Collecting data at Miller Island

Fish and Wildlife

Bald Eagle

The bald eagle is one of the most visible TES species within the Columbia River Gorge National Scenic Area corridor. The species is listed as Federally Threatened (proposed for federal de-listing since 1999), Washington State Threatened, and Oregon State Threatened. Locally, within the Columbia River Gorge, almost all nests are in relatively undisturbed sites; located on large trees within ½ mile of the Columbia River or a direct tributary. All known nests within the CRGNSA are monitored annually for nesting success outcomes. Twenty-two nest sites are known to have been active in 2006 in the National Scenic Area, with a subset of 14 nests (64%) on Forest Service managed land (Isaacs and Anthony, 2007). The data is pooled and summarized by Frank Isaacs of the Oregon State University's Cooperative Fish and Wildlife Research Unit (Isaacs and Anthony, 2007*). This annual report covers data from 1971 to 2006. In 2006, there were 1.64 young per breeding pair in the Lower Columbia River Zone. This was the 5th consecutive year that the 5-year productivity for OR was greater than the Recovery Goal of 1.00 and the first year that the 5-year productivity for WA surpassed that goal. This nesting success and steady rise in population numbers shows a clear success in population recovery region-wide.

*Isaacs, F.B. and R.G. Anthony. 2007. Bald eagle nest locations and history of use in Oregon and the Washington portion of the Columbia River Recovery Zone, 1971 through 2006. Oregon Cooperative Fish and Wildlife Research Unit, Oregon State University, Corvallis, Oregon, USA.

In addition to nest success surveys, wintering bald eagles along the lower 13 miles of the Klickitat River are being monitored for a 5-year period (November 2003- March 2008) to obtain baseline data, so as to be able to determine the potential effects of increased recreation use from the Rails-To-Trails project. Average survey total was 20 eagles. Surveys ranged from 2 to 28 total eagles. Numbers were highest from December through March. Overall, eagles were well dispersed along the survey area during this year's visits. Water levels were in flood stage during 80% of the survey period, which resulted from above average rainfall. River water was turbid and likely reduced visibility for foraging eagles during some of the visits. The December 9 survey had a high count of 28 eagles this year.

Peregrine falcon

This charismatic species is presently listed as a FS Sensitive, Washington State Sensitive, and Oregon State Endangered. The American peregrine falcon was listed as endangered by the U.S. Fish and Wildlife Service (USFWS) in October 1970. At that time, the peregrine falcon was essentially considered extirpated from Oregon and Washington due to reproductive failure from organochlorine pesticides. The species recovered rapidly at a national level and was federally de-listed on August 25, 1999. In 2003, the U.S. Fish and Wildlife Service (USFWS) initiated a 13-year (2003-2015), nationwide effort to monitor nesting success of peregrine falcons after delisting. In February 2003, Oregon Eagle Foundation, Inc. (OEF) was selected by USFWS, U.S. Forest Service (USFS), Oregon Department of Fish and Wildlife (ODFW), and Bureau of Land Management (BLM) to coordinate the 2003 peregrine falcon breeding area survey for Oregon. Nest sites are typically located in deep ledges (with overhangs), on sheer cliffs over 150' in height, that are out of reach of mammalian predators and is within ½ mile to riparian, lacustrine, or marine habitat. Pacific Northwest falcons have recently taken the opportunity to locate nests on suitable bridges, and tall buildings.

In 2006 within the CRGNSA, there were 12 known nests, or eyries, of peregrine falcons monitored within Oregon (Issacs, 2007*). An additional 3 eyries are known and monitored in Washington State. The 2006 results suggested that the population of peregrine falcons nesting in Oregon was stable or increasing. The minimum breeding population size in 2006 was 107 breeding pairs, an increase of 26% since 2003.

*Isaacs, F.B. 2007. Results of peregrine falcon breeding area monitoring in Oregon, 2003-2006: Final Report. 5 Feb 2007. Oregon Cooperative Fish and Wildlife Research Unit, Department of Fisheries and Wildlife, Oregon State University, Corvallis, OR.

Annual Monitoring

Multnomah Creek Gravel Removal

In February 2003, a Biological Assessment (BA) entitled "Maintenance Dredging in Multnomah Creek" was prepared by Oregon Department of Transportation (ODOT) and submitted by the Columbia River Gorge National Scenic Area (CRGNSA) to the National Marine Fisheries Service (NMFS). The BA identified the need to periodically remove gravel from Multnomah Creek between the Multnomah Falls Lodge and Benson Lake, to reduce the likelihood of flooding a pedestrian walkway. The intent is to protect public safety for people using the walkway to access the Multnomah Falls recreation site. NMFS issued a Biological Opinion (BO) to the CRGNSA on April 15, 2003. As part of the Terms and Conditions of the 2003 BO, the CRGNSA is required to produce an annual monitoring report "describing the result of CRGNSA's proposed annual bedload and habitat monitoring activities." Monitoring and dredging was completed in the summer of 2006.

Channel monitoring data from 2006 indicates that several sections of the channel have returned to some sort of dynamic equilibrium while other sections are still adjusting to past gravel removal. While the overall channel bed stability hasn't changed, the recruitment of spawning sized substrate is continuing in some areas. Cross section geometry in three of the five measured cross sections remained consistent with measurements taken in 2005, suggesting that these sections are relatively stable for the time being. Cross section geometry in the other two measured sections is still changing through channel aggradation, gravel bar formation and thalweg migration due to past gravel removal. It is likely that the stream channel is attempting to aggrade and build up a more natural channel bed elevation that is in equilibrium with Benson Lake and the Benson Lake delta.

The opportunity for Multnomah Creek to change to a natural stream configuration is severely limited in some areas due to constraints on the channel from the pedestrian walkway. This walkway confines the channel, increasing water velocities and decreasing the opportunity to create sinuosity. The largest influence that past gravel removal has had on this section of stream is encouragement of channel aggradation and gravel deposition. Continual gravel removal impedes the natural desire of the channel to build up in elevation to be more in dynamic equilibrium with the elevation of Benson Lake. However, gravel removal is necessary to reduce walkway flooding and protect public safety, as described in the BA.

Recreation

CRGNSA Niche

In 2007 the CRGNSA began the Recreation Facility Analysis in which the unit validated its recreation niche that was developed several years ago. A draft Program of Work has been developed and will be made available for public review in September (Step 6 of the 7 Step RFA process).

Key Accomplishments

The following are key accomplishments in recreation management since the inception of the Columbia River Gorge National Scenic Area.

Recreation Facilities:

- Development of Sams Walker and St Cloud recreation sites, BZ Corner Boat Launch site, and Balfour Klickitat Day Use area.

- Reconstruction of the Angels Rest, John Yeon and Oneonta Trailheads. Restoration of several historic facilities at Eagle Creek (Big John, Picnic Shelter, Trail Registration Shelter and the Overlook shelter). Historic rock walls restoration at several recreation sites along the Historic Columbia River Highway. Site restoration and rehabilitation of several recreation sites after the 1991 Falls Fire and 1996 flood events. Retro fitting existing sites to accommodate universal access at Eagle Creek, Eagle Creek Overlook, Wahkeena Picnic area and Larch Mountain Picnic Area.

- Several major construction and reconstruction projects were implemented at Multnomah Falls starting in 1994 with the Lodge restoration project which developed new public restroom, snack bar and elevator. Construction of a state of the art wastewater treatment plant; reconstruction of the Benson Pump House and water tank; replacement of the Lodge roof; and reconstruction of the plaza to accommodate universal access were completed in a span of 7 years.

Trails:

- Developed the Augspurger Mt. Trail; trail systems for the Sams Walker and St. Cloud sites; the Catherine Creek universal/interpretive trail; and completion of the Rails to Trail Environmental Assessment.

- Completed over a hundred miles of trail reconstruction through out the Gorge.

- Restoration of many miles of trail damaged by the 1991 Falls Fire, 1991 Wauna Point Fire and the 1996 flood events.

Interpretation/Environmental Education:

- The CRGNSA authorized $10 million for the development of a conference center and interpretive center in the Gorge, both projects were completed under a unique public private partnership. Both now serve as significant information and interpretive outlets for the Forest Service.

- Development of a new visitor center and interpretive exhibitory at Multnomah Falls Lodge during the 1994 restoration project was completed. The Forest Service has made significant strides to enhance visitor and interpretive services on site.

- Increased interpretive services offered gorge wide from interpretive brochures to signs to guided walks to school activities.

Partnerships:

Partnership is a driving theme in the CRGNSA. The majority of projects accomplished in the gorge are completed through partners. Below are a few highlights:

- Developed and fostered partnerships with:
  - Friends of Multnomah Falls to provide staffing resources for the visitor center;
  - the Oregon Zoo's Urban Nature Overnight program which exposes youth to the outdoors through an overnight experience and environmental educational activities at Eagle Creek;
  - Mid Columbia Council of Governments and the Mazama's to field a 20 person youth crew;
  - many trail organization such as Washington Trails Association, Pacific Trail Association; Back Country Horseman etc. to maintain hundreds of miles of trail.
  - Skamania Lodge and the Gorge Discovery Center to provide interpretive services to their customers.
  - many governmental agencies to develop recreation projects.
  - Washington State Park and the Klickitiat Trail Conservancy to form a cooperative working group to manage the Klickitat Rails to Trial.

2006 Target Accomplishments:

Code	Description	Target	Total Accomplished
FAC-MAINT	# rec. facilities maint. to std.	23	23
REC-ED-PROD-STD	# interp/ed products provided to std.	230	1,309
REC-PAOT-DAYS-ADM-ST	# paot days adm to standard	437,600	486,926
REC-SIT-OP-STD	# rec. days managed to std. (general forest areas)	193	161
REC-SUP-ADM	# of rec. SUP adm. to std.	11	22
TL-IMP-STD	Miles trail improved to std.	12	3

TL-MAINT-STD	Miles of trail maint. to std.	71	90.5
TL-SYS-STD	Total trail system meeting std.	124	126

2006 Recreation Accomplishment Highlights:

Klickitat Rails to Trails: Began implementation of the Klickitat Rails to trail. Awarded design contract for deck and rail placement on the Fisher Hill Trestle/Bridge and trail construction contract to improve the surface of the trail in the communities of Klickitat and Lyle (approximately 3 miles). Received Federal Highway Forest Road Enhancement grant to design and build the Lyle Trailhead. The site and railroad right of way survey is completed and negotiated with Recreation Solutions Enterprise Team to complete the design and contract documents.

Negotiated and executed a Cooperative Agreement between the USFS and WA State Park for management of the Klickitat Rails to Trail. The Agreement established a cooperative working group comprised initially of the USFS, State Park and Klickitat Trail Conservency to operate and maintain the trail.

Friends of the Forest Day: Worked with the National Forest Foundation to pilot the first Friends of the Forest Day at Eagle Creek. The program has now been expanded to other Forests. Facilitated discussion between the National Forest Foundation and Skamania Lodge to sponsor FFD's for Lodge guest (currently in planning stage).

BZ Corner: Began the long awaited construction of the BZ Corner Launch Site on the White Salmon Wild and Scenic River. This is the culmination of a project that began in 2002 with the acquisition of the only public launch site on the river. The project was funded with a Federal Highway Forest Road Enhancement grant.

Multnomah Falls/Skamania Lodge Partnerships: Initiated discussions with Lodge Staffs to explore and develop innovative ideas to enhance visitor, interpretive services and increase revenue stream. Projects implemented include guided hikes and special events at Multnomah Falls; and increasing NWIA retail space at Skamania Lodge.

Trails: Continued to expand relationships with volunteer groups such as WTA, Mazama, and CAMBA to assist in the trail maintenance program. Maintained the Partnership with Mid Columbia Council of Government to field a 20 person youth trail crew using FDDS funds. The program also assists youth in learning life skills and incorporates an environmental education component. Reestablished partnership with Multnomah County Alternative Corrections Crew for trail and recreation site maintenance.

INFRA: Completed required recreation site, trail and trail bridge surveys and facilities inspections and OSHA safety surveys.

Eagle Creek Overlook: Included the Overlook in the National Recreation Reservation Service and completed ADA retrofit of the restroom, interior trails and one campsite.

Urban Nature Overnight (UNO): UNO is a partnership with Oregon Zoo to provide a safe overnight camping experience for underserved urban youth who do not traditionally have access to outdoor experiences in the Columbia River Gorge. The program introduces inner city youth (grades 3-5) to the basics of camping and outdoor recreation in a safe environment; increase understanding, enjoyment and respect of the natural world among these traditionally underserved constituents; improves our connection to the inner city of Portland by building a strong sense of ownership and appreciation of the National Forest; and inspire the next generation of recreational enthusiasts, wildlife stewards and professional in fields related to resource management. Forest Service Challenge Cost Share funding allowed UNO to provide school year programming for 60 youth during the 2006-07 school year. The program hosted two sessions: On July 24-25, 19 youth participated (50% White/Caucasian, 20% Hispanic/Latino, 18% Black/African American, 2% Native American/Alaska Native, 5% Asian/Indian, 5% Other) and on July 26-27, 33 youth participated (80% Hispanic/Latino, 10% White/Caucasian, 5% Black/African American, 5% Other).

SCORP Diverse Population Steering Committee: participated on the Oregon Statewide Comprehensive Outdoor Recreation Plan Steering Committee for Diverse Populations. The purpose of the committee is to help guide Oregon State Parks and Oregon State University researchers studying minority populations participation in outdoor recreation activities.

Key Monitoring Questions:

- *Understand recreation use, trends and participation and how they affect natural resources, adjacent lands, carrying capacity, facilities and services provided in the CRGNSA.*

- *What are visitor's perceptions of crowdedness?*

- *What new recreational activities are occurring and where? What are the impacts to natural resources, adjacent lands and other recreation facilities?*

- *What are the conditions of recreation and trail facilities?*

- *Are visitors satisfied with facilities and services provided?*

- *Are the NSA's recreation and trail facilities; opportunities; and services provided meet the NSA recreation niche and public expectations?*

- *What are the current uses and activities within the Wild and Scenic River corridors and what are their impacts to the river's Outstanding and Remarkable Values.*

- *What land use activities are adjacent to recreation areas and their impacts to visitor experience and ability to provide facilities or services?*

- *Do new developments and activities meet NSA and Wild and Scenic River Management Plans guidelines?*

Monitoring Results
Current monitoring efforts required and completed:

1. Understand recreation use, trends and participation and how they affect natural resources, adjacent lands, carrying capacity, facilities and services provided in the CRGNSA.
2. What are visitor's perceptions of crowdedness?
3. Are visitors satisfied with facilities and services provided?

    - In FY 06 the unit completed sampling and data collection for the CRGNSA National Visitor Use Monitoring Report. The draft was sent to the NSA for review in July of 2007. Generally the report shows an increase in overall use, which appears to be a function of changing demographics, gas prices, easy access to recreational opportunities and the NSA's proximity to the Portland/Vancouver Metro area. It appears visitor do not perceive the Gorge as overly crowded. On a rating of 1-10 with 10 being crowded, approximately 38% of all visitors' rate day use sites between a 6 and 7 crowding rating. Visitor Satisfaction appears to be good to very good.

4. What are the conditions of recreation and trail facilities?

    - Required Regional Infra Trail inventory and condition assessments completed.
    - Required Regional Infra Recreation Site Condition Surveys completed.
    - Required Annual Trail Bridge monitoring/inspections completed.

    - Recreation and trail facilities are generally in good shape. Deferred maintenance is relatively low compared to the Regional average, however significant projects at Eagle Creek, Wahkeena Falls and Multnomah Falls should be implemented in the near future. Several bridges also need to be replaced within the next year.

10. Are the NSA's recreation and trail facilities; opportunities; and services provided meet the NSA recreation niche and public expectations?

    - The NSA has completed Step 5 of the 7 Step Recreation Facility Analysis (RSA). As mentioned above, RSA validated the NSAs recreation niche (Step 1) developed several years ago. The Site Ranking Step also determined that recreation sites in the NSA meet the recreation niche.

    - Conducted Northwest Forest Pass monitoring/compliance and achieved an 89% compliance rate. Recreation fees provide a significant source of funding to maintain facilities and provide services.

Wild and Scenic Rivers

Wild and Scenic River Management Plans and Land Acquisition

Two Management Plans for the White Salmon and Klickitat Wild and Scenic Rivers were completed:

- White Salmon: 11/1991
- Klickitat: 11/1991

- Acquisition of the Gross property to ensure public access to the White Salmon River and development of the property as a boat launch site (BZ Corner Launch Site).

- Acquisition of properties in Husum to ensure public access for a portage around Husum Falls. Properties were developed to provide a safe portage and restroom facilities.

Key Accomplishments

White Salmon: Set standards for perceptions of river crowding; set management direction for overall goals, the entire W&SR corridor and the five specific geographic areas (river channel, river buffer, federal lands outside the buffer, private lands outside the buffer and rural centers, and private lands outside the buffer but within rural centers). Surveyed for bull trout.

Identified, prioritized and sought purchase of key parcels to provide river access and protect sensitive areas; installed toilets on both sides of the river at the Husum portage site; installed railing system to provide boating access at BZ Corner; received Federal Highways grant to establish river access at BZ Corners and Husum; and provided on the ground FS presence (River Ranger) since 2003. Areas for photo points were identified in 2005.

Klickitat: Provided a general outline of agency roles; established on the ground FS presence (River Ranger) 2003; fostered recreation opportunities through rails to trails designation and permitted river outfitter guide use.

Constructed an accessible trail and trailhead facilities (Balfour/Klickitat); received Federal Highways grant to construct a trailhead at Lyle for rails to trails.

2006 Accomplishments

White Salmon:

Completed construction of public parking facilities at BZ Corners. Ongoing dialogue with Underwood Conservation District (and they with Washington DOE) to set up water quality testing.

River Ranger provided FS field presence during busy summer recreation use, and monitored commercial trips for safety procedures and guide river running techniques.

At BZ launch, collected numbers of users, type of watercraft, expected time on the river, and put in and take out time and location, for private and commercial recreationalists.

At Husum Falls, counted number of private and commercial boaters, types of watercraft, time they ran the falls and for commercial trips, observed safety set up and arrival time at Husum Falls portage areas.

Klickitat: Competed a section of Rails to Trails tread improvement; MOU with the Klickitat Trail Conservancy close to completion.

River Ranger provided FS field presence during busy summer recreation use.

Key Monitoring Questions

White Salmon:

- *Sensitive cultural sites*
- *Water quality and quantity*
- *Fish populations and habitat*
- *Vegetative communities*
- *Population trends of pileated woodpecker*
- *Species on the R6 Sensitive Species List (plants and animals)*
- *Perceptions of river crowding*
- *Whitewater boating safety*
- *Conflicts between recreation users and recreationalists and private land owners*
- *Resource damage in dispersed areas from recreationalists*
- *Compliance of developments/activities with management plan standards*
- *Character of the river area*

Klickitat:

- *Enhance shorelines (WDFW)*
- *Water quality monitoring program (WA DOE)*
- *Inventory rare plant species/communities (FS)*
- *Regularly patrol river and access sites (FS)*
- *Collect recreation use info (FS)*

Monitoring Results 2006

White Salmon:

Sensitive cultural sites: sites previously identified and mapped. Input provided for individual actions as they occur.

Water quality and quantity: UCD set up and took monitoring data for years. Sites have been abandoned since at least 2002 and no data has been collected. Temperature sampling taken at BZ launch site in 2004 and 2005 and not continued, due to little to no variation in temperature during the year.

Fish populations and habitat: original fish composition studies and bull trout surveys done in 1992-93. USGS currently monitors rainbow trout movement between Husum and NW Lake.

Vegetative communities: GIS vegetation layer being worked on (draft completed in 2007).

Population trends of pileated woodpecker: N/A FS was not able to purchase SDS lands where woodpecker habitat occurs.

Species on the R6 Sensitive Species List (plants and animals): plant list was completed in the early 1990's. Bull Tout monitoring stopped due to limited vision in the water column. Informal annual reporting of Harlequin duck populations through commercial guide sightings.

Perceptions of river crowding: Studies completed and standards set in 1998. See above for 2006 accomplishments.

Whitewater boating safety: Two minor accidents reported from commercial outfitters; Sue Baker observed one injury at Husum Falls when a private frame raft ran the falls and the rower split his forehead on the frame. (There is a very high likelihood that alcohol was involved).

Conflicts between recreation users and recreationalists and private land owners: Responded to complaint by a landowner of outfitters egging their clients on to yell and scream, and slap their paddles flat on the water, sounding like gunshots. Both the river manager and river ranger spoke to the two outfitters (and to some of the guides directly) that run that section of river asking their guides to cease this practice when on that stretch of river, and the FS river ranger made regular trips to the site to see if the guides were complying.

Resource damage in dispersed areas from recreationalists: The west Husum Falls portage continues to grow user trails made by rafters and kayakers, from the river through the riparian zone to highway 141. Spoke to the outfitters at the annual outfitter/guide meeting about reducing riparian impacts from their clients. Also requested outfitters to have their clients to use the rock section of the East Husum Falls portage, and keep away from walking behind the small alder (may not be possible at high water- a safety issue for clients disembarking into water that is deeper and swifter early in the season).

Compliance of developments/activities with management plan standards: Tracked activities, but not all. Gave a presentation on and left copies of the White Salmon Management Plan to one realty company and spoke on the phone with another. Visited one land owner with riverfront property for sale.

Character of the river:

1. Number of developments/activities evident from the river: River ranger monitors every time he travels down the river.

2. Area of disturbed buffer vegetation: River ranger monitors every time he travels down the river.

3. Density of housing inside and outside rural centers: Not done in the last three years, time to review.

4. Number of unapproved activities or developments: one known of, at the confluence of Rattlesnake Creek and Indian Creek.

Klickitat:

Enhance shorelines (WDFW): worked with Mid Columbia Fisheries Enhancement Group to gather riparian hardwood cuttings for planting by the Yakama Nation in the riparian zone; and to remove a large metal culvert and cable TV line from the river.

Water quality monitoring program (WA DOE): Actions unknown

Inventory rare plant species and communities (FS): Area ecologist is reviewing actions for this subject.

Regularly patrol river and access sites (FS): River ranger was present one to three days a week June through early September. This included the Klickitat Rails to trails.

Collect recreation use info (FS): Commercial outfitters report use annually; river ranger notes trail and river use.

** Bald eagles, especially in the lower Klickitat river area, have been monitored during winter months since 2003.

Lands

Introduction

There are several key aspects of work that fall under the category of "lands" in the Scenic Area. These include authorizations for use of National Forest System (NFS) land through Special Use authorizations, right of way acquisitions and grants, easements, boundary surveying and management, resolution of trespass and encroachment cases, and management of third party rights on NFS land. Because of its high profile nature in the Scenic Area however, the focus of lands activities has been on land adjustments, and specifically land acquisitions through purchase. For the purposes of monitoring, the focus will remain on land adjustments only.

Land Acquisition Priorities Established

A method for prioritizing land acquisitions was established in 1994. This system was based on significance and threat, threat being defined as what activities would be allowed on any given parcel if the Land Use Designation (LUD) was changed from Special Management Area (SMA) to General Management Area (GMA) under the terms and conditions of Section 8(o) of the Scenic Area Act. This prioritization method worked well in focusing land acquisition activities on the most sensitive and important properties.

In 2000, Congress amended the Act to sunset Section 8(o). By April 1, 2004, all parcels offered for sale to the Forest Service under Section 8(o) that were not acquired experienced an LUD change to GMA. This somewhat invalided the "threat" portion of the prioritization process. The Scenic Area has continued to acquire lands based on the acquisition list established under Section 8(o), however an updated system for determining land acquisition priorities is in order now that Section 8(o) no longer exists.

Key Accomplishments

Since establishment of the Scenic Area in 1987, a total of 36,746 acres have been added to the National Forest System in the Scenic Area. These acres have been added through purchase, exchange, donation, and transfer. The purchase program alone has added 17,246 acres.

2006 Accomplishments

In 2006, the Scenic Area acquired 239 acres through the Land and Water Conservation Fund purchase program.

Key Monitoring Questions

What were the primary factors in rating the acquisition a high priority?

Did land acquisition meet the purposes for which the land was acquired?

Did land acquisition increase overall land management efficiency?

Monitoring Results

No monitoring has been done to date.

Implementation and Effectiveness Monitoring

Introduction

The following are Implementation and Effectiveness Monitoring reports for completed projects from 3 consecutive years. The full reports including worksheets are available at the CRGNSA office:

Burdoin I Thin Implementation Monitoring Report

Project: Burdoin Mt. Thin (West ½) Acres: 192
Field Trip: August 18, 2004

Implementation Protocol:

15 monitoring points were visited during the field trip. 10 of these points corresponded with photo monitoring points that had been established summer 2003. Five of the points were established in the summer 2004 for canopy monitoring only. The photo points were located within various vegetation types (see attached map) including:

- Mixed Oak/Conifer: 4 points
- Shaded Oak/Pine: 2 points
- Riparian: 2 points
- Upland Oak/Pine: 5 points
- Oak Savannah: 2 points

Canopy photos taken at the monitoring points (see Appendix A) were analyzed in Arc View to produce average and total canopy cover percentages. The horizontal photos were compared in the field to observe change over time.

The following chart protocol indicates how items were measured:

RX: *Measure canopy closure and compare with RX. (measured in Arc View) Compare the rest with RX observationally*
AIR: *Minimize Slash by using post poles, firewood-not ripe for measurement(not done yet)*
Chipping - *Question implementers (Diana will follow-up)*
NR: 15% disturbance per unit *(Observed at each photo point)*
B3 road pre/post project maintenance - *Observe condition of road (No road maintenance was done)*
Mechanized equipment - *Not used*
Activities within 50 feet stream monitored - *No mechanized used, not to be measured*
Stabilize head-cut – *Question implementers (This was not done)*
Wetland vegetation undisturbed - *Observation one per veg type*
120 linear ft. of coarse wood-per acre -*NOT MEASURABLE*
December 15-March 31-*Question contracting officer representative*
300 ft buffer squirrel nest - *Observe nest sites in monitoring area (1 each veg type)*

200 ft. buffer Known sites other sensitive wildlife – *N/A*
Grassy meadows undisturbed - *Observation- 1 per veg type if available*
Flush Stumps - *View from along Courtney Road*
Visible development/leave islands - *view from HCRH and I-84 (and Courtney Rd (non-KVA)).*
No permanent Tree marking - *Observation from monitoring point*
Close user-made trails - *Question contracting officer representative*
Warning signs general public key trail intersections/corral – *Question contracting officer*
Avoid cultural sites – *Question contracting officer and Marge Dryden* 08/26/04 – update: slash piles have been piled in cultural sites (see attached documents) and must be removed before burning. Primarily sites 45KL863, 45KL864, and 45KL865

Veg Types: Implementation Results + Prescription Analysis
See Appendix A: Canopy Photos

Unit A3 - Mixed Oak/Conifer
The unit was partially implemented according to the prescription and contract.

- *Too much slash remains on the ground and a method to involve the public or interested groups in hauling away firewood has not yet been resolved.*

Rx: although the unit has been improved by the thinning, it still appears to be unhealthy. The canopy requirements have been met, but the canopy prescription is too high. Douglas Fir trees need to be removed from this stand to provide more room for a Ponderosa Pine/Oak Habitat, which would help reduce the canopy.

Canopy Rx	=	Average canopy –	80%
		Total canopy range -	60-90%
Implemented canopy	=	Average canopy -	78%
		Total canopy range -	64 – 88%
DFC (East Conifer)	=		40-80%

Unit E1 – Shaded Oak/Pine
This unit partially met implementation goals.

- *Too much slash remains on the ground and a method to involve the public or interested groups in hauling away firewood has not yet been resolved.*
- *Canopy Rx was not met (see below)*

Rx: This unit needs more thinning. During the monitoring field trip, it was noted that many 8" DBH trees were left. Douglas Fir trees (larger than 8" limit) need to be removed from this stand to provide more room for a Ponderosa Pine/Oak Habitat.

Canopy Rx	=	Average canopy -	70%
		Total canopy range -	15 – 75%
Implemented canopy	=	Average canopy -	87% (high)
		Total canopy range -	84% (high)
DFC (PP/Oak)	=		25-60%

Unit B2 (north end along Courtney Road), Unit C3 – Upland Oak/Pine
This unit was partially implemented according the prescription.

- *The canopy prescription was not met.*

Rx: The Rx of this unit remains controversial in trying to determine an appropriate goal for an oak woodland such as this. A clear prescription needs to be maintained if there is no DFS. The Rx average for this unit is too high, there are many open areas in the unit where the canopy may = 0%

Canopy Rx	=	Average canopy -	70% (too high?)
		Total canopy range -	15-75%
Implemented canopy	=	Average canopy -	56%
		Total canopy range -	40-63% for this unit/vegtype
DFC (PP/Oak)	=		25-60%

Unit B2, Sites 6 + 7 - Riparian
This stand type was implemented according to the Rx.
Rx: The Rx is too conservation with canopy cover, many small trees were not cut due to Rx requirements. More Douglas Fir should be removed. Prescription needs to be revised

Canopy Rx	=	Average canopy -	don't go below 80%
		Layer 2 -	don't go below 7%
		Layer 3 -	don't go below 8%
Implemented canopy	=	Average canopy -	80-82%
DFC	=	Not specified for this veg type:	could be - 40-60%

Unit C2 – Oak Savannah *(Unit B2, Site 8 was another site for this veg type but not considered in this report because the area was not treated)*
This unit was partially implemented according the prescription.

- *The canopy prescription was not met.*

Rx: The Rx for Oak Savannah should be lower. It was suggested that pruning the overstory should be addressed in prescription. Could read: "Thin overstory as needed to meet prescribed canopy"

Canopy Rx	=	Average canopy -	50%
		Total canopy range -	40-60%
Implemented canopy	=	Average canopy -	36.5% (low)
		Total canopy range -	59%
DFC	=	Not specified for this veg type:	could be - 25-40%

Conclusion:
Overall, Burdoin Mt. was successful in meeting the goals of the implementation contract and prescriptions according to observations made in the field and measurements of the canopy made in the office.

VEG:

- Although the project met the goals of fuel reduction, implementation of the forest canopy leaned towards the conservative end of the prescription. The Revised Management Plan is closer to needed future prescription regarding DFC.
- Douglas fir trees remain abundant in these stands, and should be removed to create an open canopy and move towards an oak/pine habitat structure. Many of the Douglas fir were left because they had a larger diameter than the 8" limit. (commercial size)
- The pruning was implemented according to the contract, but Bob Gavenas mentioned that in the future the contract should include limbs that hang within the 6' range.

AIR:

- Need to address usable wood product removal in future contracts or force account projects.

NR:

- Natural resources were protected.
- Fewer leave islands needed in future.

SCENIC:

- Minimal scenic impact.

RECREATION:

- Recreation not affected.

CULTURAL:

- Cultural sites with slash piles in them need to be addressed.

(Request entire Burdoin I Monitoring Report for complete data leading to these conclusions)

Monitoring Team

• Diana Ross,	*Veg Team Leader*	CRGNSA
• Allisa Carlson,	*Landscape Architect Student Intern*	CRGNSA
• Robert Gavenas,	*Forester*	GP
• Chuti Fiedler,	*Fish/Wildlife Biologist*	CRGNSA
• Mark Kreiter,	*Hydrologist*	CRGNSA
• Robin Dobson,	*Botanist/Ecologist*	CRGNSA

Balfour-Klickitat Day Use Site

(EA name: Lyle-Klickitat Day Use Site)

Monitoring Report

September 2005

Introduction

Implementation and effectiveness monitoring was conducted for the Balfour-Klickitat Day Use Site as a component of forest plan monitoring. The purpose of monitoring is to learn, to improve processes, to determine if our actions are effective, and to change actions that are ineffective or detrimental.

The Environmental Assessment (EA) was initiated in 2000 and completed in 2003. The EA, titled *Lyle-Klickitat Day Use Site* analyzed development of a day use site, ecological restoration, and scenic enhancement along SR 14. FHWA funded construction of the day-use site. It was largely completed in 2003; the parking lot landscaping occurred in 2004 and the interpretive signs in 2005. The ecological restoration and scenic enhancement have not been funded to date. This monitoring effort evaluates only the completed day use site.

Objectives

1: Application of Guidelines Monitoring: Determine if the EA required the NSA, GP, NWFP, WSR Plan guidelines to be applied, and if a finding of consistency to the guideline was made.

2: Implementation Monitoring: Determine if the project was implemented as designed in the Environmental document.

3: Effectiveness Monitoring: Determine if the EA requirements were effective in meeting the EA standards.

Process

1: Application of Guidelines Monitoring

Planner reviewed EA to determine:

- Whether requirements for NSA, GP, NWFP and WSR Plan were applied/cited.
- Whether there is a finding that the project is consistent with the guideline.

2: Implementation Monitoring

Monitoring team compared project implementation with the EA requirements, including:

- Project requirements to meet purpose and need
- Design requirements
- Mitigation measures

See attached form; I=Implemented, P= Partially Implemented, N=Not implemented

3: Effectiveness Monitoring

Monitoring team determined if the built project met the EA standards.
See attached form; E=Effective, P= Partially Effective, N=Not Effective, N/A = not implemented

Findings/Conclusions

1: Application of Guidelines Monitoring:

- The EA would likely not have withstood an appeal given the lack of findings of consistency with the applicable plans and lack of watershed analysis.
- Citing guidelines and findings of consistency varied greatly depending on the specialist. For the CRGNSA Plan:
  - The cultural resources section did not cite any guidelines, but made a conclusion of No Adverse Effect.
  - The recreation resources section included a long list of guidelines, but made findings on almost none of them.
  - The natural resources sections included a "consistency determination" discussion with clear citing of the SMA guidelines, followed by the findings for each guideline. However, the GMA guidelines applied here.
  - The scenic resources section cited "applicable" GMA guidelines, then lumped the findings of consistency for the guidelines. No guidelines for scenic travel corridors were cited.
- WSR Plan: Only the recreation section cited the WSR requirements, but then made no findings of consistency. Cultural, scenic and natural resources did not cite the WSR requirements.
- GP/ NWFP Plan: The water resources section discussed the GP/ NWFP water resource buffers.
- The EA lacked references.
- The EA process suffered from delayed timelines and change in personnel

2: Implementation Monitoring:

- In large part, the project was implemented as designed. Some redesign occurred near or during construction to avoid cultural resources; No Adverse Effect resulted. The redesign required a change in trail grade, and new materials (a curb stop) without LA review. LA/Resource specialists would have liked to review board walk materials for resource and scenic impacts.
- If the parking lot screening trees die after the FHWA contract ends, there are no funds set aside for replacements.
- Minor changes included changing the "central interpretive panel" to three clustered interpretive signs. The toilet was moved a short distance. Signs should be added per the EA

at picnic spot near river for bull trout, cliff swallow, and ask people not to go to river. Litter monitoring is not taking place

3: Effectiveness Monitoring:

The project turned out very well. The project was implemented per the EA. Resource standards were met with one notable exception: The fencing to discourage use to the river was not effective. Trails are more evident and extensive than pre-construction.

Recommendations

1. Application of Guidelines Monitoring:

1) Develop an EA template for citing Plan guidelines and findings of consistency. Requirements of all relevant plans need to be listed and evaluated; the CRGNSA Plan, the GP or Mt Hood Plan (with NWFP guidelines), Wild and Scenic River Plans where applicable. This material could be incorporated into the EA chapters (e.g. at the end of the effects) or placed in an appendix. Consider the ease of the reader when locating this material in an EA. The planning group will develop this template.
2) When findings of consistency with guidelines are made, specialists need to provide rationale why or how the project meets the guideline. A simple "meets all the applicable guidelines" is not adequate.
3) Measures should be developed to evaluate effects. For instance, the Klickitat Rails-to-Trails EA used "acres of impervious surface" to measure hydrologic effects.
4) Use of graphics is encouraged.
5) File all types of monitoring reports in a shared folder. Place on web.

2: Implementation Monitoring:

1) EA planning team, or at least the EA team leader and EA team project proponent, meet with designers as the design begins to convey the rationale for the project design and mitigation requirements.
2) EA planning team given the opportunity to review the project design and contract specifications, and to review the project as it is under construction. Specialists are informed when contract modifications take place. Specialists participate depending on level of need. For instance, Heritage needs to know when construction is about to begin in order to inform Tribes.
3) Expand the IDT project spreadsheet to include projects through the design and implementation phase.
4) Resume the general round robin at the end of IDT meetings for further opportunity to update team.
5) Develop process for landscaping contracts on the east end, particularly for FHWA contracts. The plants may need to be watered and/or replaced beyond the FHWA funding period. In that case who does the work and who pays?

3: Effectiveness Monitoring:

No recommendations.

Monitoring Team

Robin Dobson – Botany/Ecology, Vegetation	Virginia Kelly – Report Leader, Writer
Marge Dryden – Heritage Resources	Mark Kreiter – Watershed
Chuti Fiedler – Fish/Wildlife	Allen Morrissette-Construction, Design leader
Stan Hinatsu - Recreation	Diana Ross – Scenic Resources

Design/Construction Team

Robin Dobson – Botany/Ecology, Vegetation	Mark Kreiter – Watershed
Marge Dryden – Heritage Resources	Allen Morrissette – Construction, Design leader
Chuti Fiedler – Fish/Wildlife	Sarah Prince – Interpretive Signs lead
Scott Springer – Recreation	Diana Ross – Landscape Architecture
Virginia Kelly – Planner (interpret EA)	Ben Scott – Design, Construction

EA Team

Mike Boynton – Heritage Resources	Mark Kreiter – Watershed
Robin Dobson – Botany/Ecology, Vegetation	Richard Larson - Fish/Wildlife, initial
Chuti Fiedler – Fish/Wildlife (BE)	Diana Ross – Scenic Resources, LUC
Art Guertin – Concluding Team Leader, Writer/ Editor	Scott Springer – Recreation, WSR
Virginia Kelly – Initial Team Leader	

Lower White Salmon BZ Corners Project

Interdisciplinary Team Meeting
September 12, 2007
The following mitigation measures were required to be implemented. This monitoring effect checked each measure for presence in the contract and implementation in the field.

1. Trail Construction and Surface/ Subsurface Water
The project will incorporate minimal impact techniques of trail construction in areas where surface or subsurface water is found. Any water sources will be piped or ditched to the river with minimal diversion. Turnpikes, French drains and other forms of water drainage devises will be incorporated wherever feasible or necessary.

Implemented: *Partially*
Reason for Not being implemented: *Not done during implementation*
Is Measure Effective: *Partially*
Comments: *Drainage devise may be necessary along side of the stairs at the put-in.*

2. Tree Cutting
No trees larger than 8 inches will be cut. Total trees cut will be less than 15.

Implemented: *Partially*
Reason for Not being implemented: *n/a*
Is Measure Effective: *Unknown*
Comments: *Number of original trees removed from parking area and trail is unknown; therefore determining the number of trees cut is not possible. 2 large trees were removed from the parking area as per the plan.*

3. Placement of Viewing Platform and Boardwalks
A hydrologist and fisheries biologist will assist in the final design and placement of the viewing platform at the end of the trail. Placement will not prevent attainment of the Aquatic Conservation Strategy Objectives and will maintain the outstandingly remarkable values for Hydrology. Boardwalks shall be constructed over all creeks/seeps that cross the trail.

Implemented: *Partially*
Reason for Not being implemented: *n/a*
Is Measure Effective: *Yes*
Comments: *Boardwalk and platform protect aquatic features well. However, a gate has been installed in the viewing platform that was not part of the plan which facilitates access to sensitive areas. Creation of this gate was not made known to the IDT prior this visit. Disconnect between design and implementation.*

4. Maintaining Woody Debris
All existing dead and down woody material will be maintained within the Riparian Reserve. Any trees needing to be cut down will remain on site. A fisheries biologist or hydrologist will

assist in placement of this material on the existing terrace to maximize aquatic and riparian benefit from this wood.

Implemented: *Unknown*
Reason for Not being implemented: *n/a*
Is Measure Effective: *Partially*
Comments: *Previous woody debris conditions are unknown; therefore it is unknown if wood was removed from site. No stumps and few pieces of large woody debris were noted presently.*

5. Minimal Soil Disturbance
The amount of soil disturbance will be minimized to what is necessary for project completion.

Implemented: *Partially*
Reason for Not being implemented: *Oversight*
Is Measure Effective: *Partially*
Comments: *Soil disturbance due to construction was minimal. Multiple secondary trails have been created post-construction due to heavy use of the area and insufficient management which has caused significant soil disturbance.*

6. Parking Lot Bioswale
A bioswale will be incorporated into the final parking lot design to reduce sediment production.

Implemented: *Fully*
Reason for Not being implemented: *n/a*
Is Measure Effective: *Yes*
Comments: *Bioswales have been constructed in the parking area and have been found to function sufficiently.*

7. Interpretive Signs
Signs interpreting the value of springs and wetlands will be posted to discourage off trail traffic at the viewing platform.

Implemented: *No*
Reason for Not being implemented: *Unknown to monitoring group*
Is Measure Effective: *Not implemented so not effective*
Comments: *Interpretive signs have not been constructed. Sign construction is top priority to help prevent further degradation of natural resources.*

8. Bull Trout/ Construction Period
A limited operating period for construction activities will be imposed to a time outside of the bull trout-spawning period. The bull trout-spawning period starts August 15 and runs through October 22 of each year

Implemented: *No*
Reason for Not being implemented: *Not in Contract*
Is Measure Effective: *Not implemented so not effective*

Comments: *Based on personal recollection of construction time frame and lack of contradictory evidence -- the construction of the parking area did occur between August 15 and October 22. The estimated project start date in the contract (though different than when it actually occurred) is 08/01/2005 and the estimated project completion date is 11/30/2006. Disconnect between plan/design and implementation.*

9. Cable Launch Area Rehabilitation
Rehabilitation of the old cable launch system (i.e. the current raft "skidding" area) will be completed with specific attention to complimenting the ecological communities found within this river corridor.

Implemented: *Fully*
Reason for Not being implemented: *n/a*
Is Measure Effective: *Yes*
Comments: *Native plants have successfully established in the old Cable Launch area.*

10. Native Planting
Only native plants will be used within the riparian corridor. Above the cliffs, other native appearing vegetation could be used.

Implemented: *Fully*
Reason for Not being implemented: *n/a*
Is Measure Effective: *Yes*
Comments: *All native plants were used in the planting of these areas.*

11. Trail Surfaces
To maintain habitat continuity and functionality, all trail surfaces will be maintained in a natural condition as much as possible. If a hardened surface is required, other mitigation measures may be desirable.

Implemented: *Partially*
Reason for Not being implemented: *Oversight*
Is Measure Effective: *Partially*
Comments: *More boardwalks are needed to prevent degradation of soils.*

12. Weed Exclusion and Soil Disturbance
All efforts to exclude weed seeds from the construction zones and during normal operations will be emphasized. All soil-disturbed areas will be revegetated as soon as possible after construction.

Implemented: *Partially*
Reason for Not being implemented: *Not Maintained*
Is Measure Effective: *Partially*
Comments: *Some shrubs have been mowed down along highway 141. Some planted trees have died and been removed. Bare soil is evident in some of the parking area; partially due to recent*

plumbing work. The grass around the parking area would not have to be mowed if it were planted with native grasses.

13. Broad-leaf Shade Trees
Trees should be planted that will be fast growing with broad leafing patterns during the summer months. This will provide increase shading for people and boating equipment.

Implemented: *Fully*
Reason for Not being implemented: *n/a*
Is Measure Effective: *Partially*
Comments: *Shade trees have been planted but currently too small to be effective. Future assessment will be needed to evaluate effectiveness. More trees could be planted in the parking area.*

14. Handrails
Handrails and staircase will be painted a dark, non-reflective color. Dark, non-reflective materials on a BZ Falls viewing platform and rails will be used.

Implemented: *Fully*
Reason for Not being implemented: *n/a*
Is Measure Effective: *Partially*
Comments: *Plastic surface is semi-reflective and ends short. The black paint has warn off in areas without plastic cover revealing highly reflective metal. Covering of the worn down areas with black plastic would make the rail less reflective and of continuous material.*

15. Treated Wood Addendum
Several additional water quality mitigation measures were added when a request came in to use treated wood for the boardwalk and viewing platform. Those are shown as an addendum.

Practices for Minimizing Water Contamination from Treated Wood

1. Store treated materials away from standing water or wet soil on-site. Store the materials on support timbers and keep covered.
2. Visually inspect and reject any wood that has obvious surface residues or bleeding of preservatives.
3. When possible, preassemble wood prior to moving it onto job site over wet areas or water. This includes cutting, drilling and treatment of freshly cut surfaces with a “paint on” preservative.
4. In the very rare case that the preservative must be applied to wood above water, a tray or bucket will be used to contain spills or drips.
5. Do not apply field preservative treatments to wood that is above water when it is raining.
6. Be sure to wipe off excess preservative that is applied in the field to minimize dripping.
7. Materials treated with field preservatives should not be placed directly into water unless the treated surface is dry and free of excess preservative.
8. Maintain construction debris (wood shavings, sawdust etc.) as described in the section below.

9. If any wood shavings enter the water, they will be collected immediately and disposed of properly.

Implemented: *Partially*
Reason for Not being implemented: *Not Done During Implementation*
Is Measure Effective: *Partially*
Comments: *During construction some treated lumber was observed piled in wet areas; potentially contaminating the spring water.*

Additional Comments/ Discussions

Stairs
Stairs along the side of the existing raft stairs would reduce soil erosion and provide easier access to the put-in site.

River Access via Unmanaged Trail and Rope
A trail has been unintentionally developed in a spring creek bed to access the river. A bolt has been drilled into a rock at the top and a rope has been attached to aid people getting down to the river. This infrastructure was not developed by the US Forest Service. There are liability concerns. The appropriateness of this access point from a safety, liability and resource protection aspect is uncertain. If this activity were to become condoned by the US Forest Service insurance agencies of the commercial rafting companies along the White Salmon River would need to be notified of the activity. An alternative access point in an area outside of the creek bed in order to protect the natural resource may be more appropriate; such as adjacent bedrock.

Trail Connecting to Private Property
Currently private and commercial rafting companies use a trail along the White Salmon River which crosses private and state land and connects to US Forest Service land. This trail is highly used. There are concerns connecting trails to private property. A written document of consent to connect the trail to private land by the private landowners would be necessary for the trail to be developed. This trail would need boardwalks to prevent further degradation of soils and water resources along it.

Cave with Bolts
A cavern below the viewing platform on the White Salmon River has bolts drilled into it. These bolts are expediting the erosion process within the cavern. Additionally the bolts may be a safety liability if one were to break.

<u>Monitoring Team</u>

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