Upper Middle Fork of the Willamette Watershed Analysis
2008 Botanical Update

Step 1: CHARACTERIZATION

Terrestrial Patterns and Processes

3. Rare and Non-Forested Special Habitats
Reference the following pages from the Upper Middle Fork Watershed Analysis (UMFWA) and the Middle Fork Willamette River Downstream Tributaries Watershed Analysis (MFWDT) on the pages listed. The information below is new or updated information that should be used with the information from the previous analysis and updates.
Reference: UMFWA pg 1, MFWDT pg 1-5,

Non forested special habitats cover approximately 2% of the 8560 acres of land in the Upper Middle Fork watershed and although they are not a high percentage of the total area their distribution across the landscape is important for biodiversity of plant and animal species. 85% of flowering plants in the central western Cascades are found in non-forested areas such as rock outcrops and meadows (Hickman 1976) and many of the documented sensitive species locations in this watershed are found in non forested special habitat areas. Many of the special habitat areas identified in the Special Habitat Management Guide (WNF 1992) are present within the watershed. Many of the special habitats were digitized into ArcGIS using areal photo imagery and not all have been groundtruthed for accuracy so more on the ground investigation is needed.

In addition to the broad upland forest categories, this watershed has stands which have been classified in the Special Habitat Management Guide (WNF 1992) as rare forested and unusual plant associations. These stands contribute to the watershed's diversity of community types, may reflect unusual environmental conditions, or may represent the outlying extent of that community. These communities are concentrated in two locations: one group occurs at the base of Diamond Peak and one on the Calapooya Ridge. The Calapooya ridge area also has many meadows. Like many meadows in the Pacific Northwest these meadows are shrinking because of conifer encroachment due to the lack of fire.

Rigdon Point RNA

The watershed also contains Rigdon Point Research Natural Area (RNA) in the southern extent of the forest and contains the headwaters of tributaries to Staley Creek. The vegetation of the RNA contains examples of dry-site Douglas fir (*Pseudotsuga menziesii)* and knobcone pine (*Pinus attenuata).* The plant communities and the knobcone pine stands have been identified as empty cells in the Oregon Natural Heritage Plan (Appendix A, Oregon Natural Heritage Advisory Council to the State Land Board 1988).

Historically, the area has received little use because of its inaccessibility. Only 10 acres in the southern tip have been logged, it has not been grazed. Recreational use is low because of its location.

This 457 acre, rocky, steep, forested area was established in 1996 with two objectives:

- Preservation of one of the northern most populations of knobcone pine (*Pinus attenuata*).
- Preservation of good examples of dry-site plant associations that is common in the southern part of the Willamette National Forest but rare elsewhere on the forest.

Detailed management recommendations and more information about this area can be found in the Rigdon Point Research Natural Area Establishment Record signed in April of 1996.

Terrestrial TE & S and Unique Species

Reference the following pages from the Upper Middle Fork Watershed Analysis (UMFWA) and the Middle Fork Willamette River Downstream Tributaries Watershed Analysis (MFWDT) on the pages listed. The information below is new or updated information that should be used with the information from the previous analysis and updates.

Reference: UMFWA pg 17-18, MFWDT pg 1-5 through 1-6

Botanical

Four species listed as sensitive on the Regional Forester's Special Status Species list (January 2008) are documented in the watersheds.

- Columbia Gorge Lewisia (*Lewisia columbiana var. columbiana*) is associated with dry rocky sites;
- *Rhizomnium nudum* grows in moist cool riparian areas and is associated with Pacific silver fir and Englemann spruce above 3000 feet.
- Thompson's Mistmaiden *(Romanzoffia thomponii) is found* in moist seasonally seepy springs on south facing slopes.
- Scheuchzeria *(Scheuchzeria palustris ssp. americana)* is associated with sphagnum bogs and lake margins above 3000 feet.

In addition 32 species from the Forest Concern, Watch and Review lists are found within the watershed boundary. Although these species are not on the special status species list they are unique or rare due to limited species abundance or distribution. Many of these species are at the edge of their known range and are found only on this part of the Willamette National Forest. Species include; green flowering ginger (*Asarum wagnerii*), bushy bird's beak (*Cordylanthus ramosus*) and Bolander's Hawkweed (*Hieracium bolanderi*). Species that are not listed but that have been found only in these locations in lane county include*; Frittilaria atropurpurea, Frittilaria glauca, and Rosa spithamaea, Asclepias cordifolia, Ageratina occidentale, Ceanothus prostrates, Cordylanthus tenius ssp. viscidus, and Lilium pardalinum.*

Terrestrial Non-Native Species
Reference the following pages from the Upper Middle Fork Watershed Analysis (UMFWA) and the Middle Fork Willamette River Downstream Tributaries Watershed Analysis (MFWDT) on the pages listed. The information below is new or updated information that should be used with the information from the previous analysis and updates.
Reference: UMFWA pg 18, MFWDT 1-6

Botanical
Invasive plant species in the watersheds are most common in previously disturbed areas and roadsides. Some species are limited to these disturbed areas and a few are able to move into non-disturbed stands. Special habitat meadow areas have been impacted by past management practices that included seeding with non-native species for erosion control and forage enhancement. Due to this practice, most meadows include a large component of non-native grass species.

STEP 2: ISSUES AND KEY QUESTIONS

Reference the following pages from the Upper Middle Fork Watershed Analysis (UMFWA) and the Middle Fork Willamette River Downstream Tributaries Watershed Analysis (MFWDT) on the pages listed. The information below is new or updated information that should be used with the information from the previous analysis and updates. No new Issues or Key questions were identified in the watershed update process.

Issue Density, Condition, Location and Use of Roads
Reference*: UMFWA pg 23- 24*

Issue Intensity and Pattern of Vegetation Manipulation
Reference: *MFWDT 2-2, UMFWA pg 24*

Issue: Non-Native Species Introduction
Reference: *UMFWA pg 23and MFWDT 2-4 through 2-6*

STEP 3, 4 and 5: REFERENCE, CURRENT, TREND CONDITIONS

Reference the following pages from the Upper Middle Fork Watershed Analysis (UMFWA) and the Middle Fork Willamette River Downstream Tributaries Watershed Analysis (MFWDT) on the pages listed. The information below is new or updated information to use with the information from the previous analysis and updates.

Special Habitats

Reference: UPMFWA pg 61, MFWDT 3-5

Special habitat areas within the two watersheds are listed by habitat type in the tables 1a and 1b below.

Table 1a. Upper Middle Fork of the Willamette Special Habitat Areas			
Habitat Type	**Symbol**	**Number of habitat features in WA**	**Acres**
Dry Rock Garden S. Slope	GD alone and with secondary types	168.0	1296.8
Moist Rock Garden	GM	1.0	0.5
Dry Meadow South Slope	MD alone and with secondary types	33.0	108.9
Mesic Meadow	MM alone and with secondary types	122.0	673.0
Swamp	MP	1.0	5.4
Sedge Meadow	MS alone and with secondary types	2.0	4.5
Wet Meadow	MW alone and with secondary	17.0	118.7
Cliff	RC alone and with secondary	5.0	2310.0
Gravel bar	RG alone and with secondary	2.0	13.0
Landslide	RL alone and with secondary	2.0	6.0
Rock Outcrop	RO alone and with secondary	12.0	175.6
Rock Quarry	RQ alone and with secondary	1.0	4.0
Talus	RT alone and with secondary	13.0	44.1
Sitka Alder	SA alone and with secondary	20.0	76.7
Vine Maple (rocky soil)	SR alone and with secondary	1.0	7.4
Vine Maple (talus)	ST alone and with secondary	2.0	5.7
Rare forested Plant association	UF	1.0	0.5
Not attributed			871.3
Count of SHAB Features	**403**	**Total Acres**	**5722.1**

Table 1b. Hills Creek Reservoir Watershed Special Habitats			
Habitat Type	**Symbol**	**Number of habitat features in WA**	**Acres**
Buildings, structures roads	AB	1.0	1.2
Dry Rock Garden S. Slope	GD alone and with secondary types	111.0	573.1
Hardwood Inclusion	HD alone and secondary types	5.0	46.3
Dry Meadow South Slope	MD alone and with secondary types	59.0	456.5
Mesic Meadow	MM alone and with secondary types	105.0	697.0
Sedge Meadow	MS alone and with secondary types	1.0	0.9
Wet Meadow	MW alone and with secondary	31.0	230.1
Cliff	RC alone and with secondary	3.0	26.9
Gravel bar	RG alone and with secondary	6.0	110.5
Landslide	RL alone and with secondary	2.0	51.0
Rock Outcrop	RO alone and with secondary	14.0	61.4
Rock Quarry	RQ alone and with secondary	2.0	36.0
Talus	RT alone and with secondary	27.0	92.0
Sitka Alder	SA alone and with secondary	9.0	29.1
Vine Maple (rocky soil)	SR alone and with secondary	4.0	37.2
Vine Maple (talus)	ST alone and with secondary	3.0	9.4
Rare forested Plant association	UF	1.0	3.4
Not attributed			253.4
Count of SHAB Features	**384**	**Total Acres**	**2715.3**

Current Trends

Calapooya Divide Meadows

Meadows are being encroached by conifers. If this trend continues there would a continued loss of meadow habitats.

Grassy Glade Meadow

Grassy Glade meadow has some encroachment from small conifers. The meadow extends in down through forested areas in "fingers". There are larger (over 10" diameter) trees around the meadow edges. Native plant species include Lemmon's needle grass (*Acnatherum lemmonii*), California brome (Bromus carinatus), California oatgrass (*Danthonia californica*), blue wildrye (*Elymus glaucus*), California fescue (*Festuca californica*) Invasive plant species St John's Wort, cheatgrass and other annual bromes and a patch of blackberry are all present here. The soil is thin and rocky and the vegetation is generally sparse and would probably not carry a prescribed fire.

Bear Mountain Meadow

This meadow is also being encroached by conifers and invasive plants. If the current trend continues the meadow habitat would continue to shrink.

Other Dry/Mesic and Wet Meadows

- This includes meadows in the rest of the watershed planning area.
- Currently encroachment by conifers and invasive plant species effects special habitat meadow areas. Meadow habitat and species diversity would increase if the current trend continues.
- Native plant species and species richness has decreased as a result of higher canopy closure and change from open meadow to a more forested canopy.
- The Upper Middle Fork Meadow Enhancement project has started work on meadows in the watershed area. This project includes Rigdon Meadows, Mutton Meadow, Big Pine Opening and Jim's Oak Patch. The vegetation response is being measured in these areas and this information should be used to assist in further meadow restoration planning.

Rigdon Point RNA

Historically this habitat was maintained by periodic fires. Knobcone pine is dependent on frequent fires to regenerate. Fire suppression has resulted in a decreased area of knobcone pine and currently they are only found in scattered populations.
Current fire exclusion in this area will lead to further encroachment shading out of the knobcone pine. If this trend continues without a prescribed or natural fire it is possible that knobcone pine could be extirpated from the RNA.

Terrestrial TE &S and Unique Species

Reference the following pages from the Upper Middle Fork Watershed Analysis (UMFWA) and the Middle Fork Willamette River Downstream Tributaries Watershed Analysis (MFWDT) on the pages listed. The information below is new or updated information that should be used with the information from the previous analysis and updates.
Reference: UMFWA pg 66, MFWDT pg 3-18, 4-4, 4-25, 4-27

Current Trends

- Current trends have not changed since the watershed analysis or update was written. Some species have dropped off the list and other species have been added to the sensitive list. See the Regional Forester's Special Status Species List 2008 for a complete list of species.
- The forest concern, review and watch list species are not listed here but face many of the same threats as sensitive plant species. This list was also updated and some species have been added and others dropped.
- Some new surveys have been conducted in the watersheds; however most of the watershed remains un-surveyed and it is likely that some plant populations have not been located and may be vulnerable.

Non-Native Species

Reference the following pages from the Upper Middle Fork Watershed Analysis (UMFWA) and the Middle Fork Willamette River Downstream Tributaries Watershed Analysis (MFWDT) on the pages listed. The information below is new or updated information that should be used with the information from the previous analysis and updates.

Reference: MFWWDT 3-18, 3-21, Current Conditions 4-3 through 4-5 Interpretations and Trends 5-2 through 5-11.

Reference

The Willamette National Forest Integrated Weed Management Environmental Assessment Decision Record was signed June 25, 2007. This document provides a framework for weed treatment on the forest. In summary; it prioritizes treatment of new invaders using the early detection rapid response approach The purpose of the project is to effectively control invasive plants according to new management direction provided in the *Pacific Northwest Region Invasive Plant Program, Preventing and Managing Invasive Plants* Record of Decision (USDA Forest Service 2005a).

Revegetation

In January 2008 National Policy Forest Service Manual Chapter 2000, Chapter 2070- Vegetation Ecology

National Policy is Forest Service Manual Chapter 2000, Chapter 2070- Vegetation Ecology 1/14/08

2070.2 – Objectives

Objectives for the use of native plant materials in revegetation, rehabilitation, and restoration of both aquatic and terrestrial ecosystems are to:

1. Maintain, restore or rehabilitate native ecosystems so that they are self-sustaining, resistant to invasion by non-native invasive species and/or provide habitat for a broad range of species including, threatened, endangered, and rare species.
2. Maintain adequate protection for soil and water resources, through timely and effective revegetation of disturbed sites that could not be restored naturally.
3. Promote the use of native plant materials for the revegetation, rehabilitation and restoration of native ecosystems.

4. Promote the appropriate use and availability of both native and non-native plant materials.
5. Cooperate with other federal agencies, state agencies and local governments, tribes, academic institutions and the private sector to increase the knowledge and availability of native plant materials, including developing sources of genetically appropriate plant materials.
6. Increase and disseminate information which will guide the selection, use, and availability of genetically appropriate plant materials.
7. Promote the study, planning, and implementation of actions which will maintain, restore and rehabilitate native ecosystems on NFS lands and other lands administered by the Forest Service and in the United States.

2070.3 – Policy

Policy for selection, use, and storage of native and non-native plant materials that are used in the revegetation, restoration and rehabilitation of National Forest System lands are as follows:
1. Ensure genetically appropriate native plant materials are given primary consideration.
2. Restrict use of persistent, non-native, non-invasive plant materials to only those situations when timely reestablishment of a native plant community either through natural regeneration or with the use of native plant materials is not likely to occur. Examples include but are not limited to the following:
a. When emergency conditions exist where it becomes necessary to protect basic resource values (such as, soil stability, water quality, and prevention of establishment of invasive species).
b. When native plant materials are not available and/or are not economically feasible.
c. In permanently, highly altered plant communities, such as road cuts, permanent and temporary wildlife openings, log landings, skid trails, temporary roads that have been closed and are used for linear wildlife openings and sites dominated by nonnative, invasive species.
d. In designated historical sites where maintenance of historical vegetation communities, including agricultural crops, is needed to maintain historical integrity (FSM 2630).
3. Select non-native plants as interim, non-persistent plant materials provided they will not hybridize with local species, will not permanently displace native species or offer serious long-term competition to the recovery of endemic plants, and are designed to aid in the re-establishment of native plant communities.

Regional EIS that amended our Forest Plan

USDA Forest Service. 2005. Decision Notice for Pacific Northwest Region Invasive Plant Program Preventing and Managing Invasive Plants, USDA Forest Service, Pacific Northwest Region, Portland, Oregon.

This ROD has amended our Forest Plan to include Standard 13:
"Native plant materials are the first choice in revegetation for restoration and rehabilitation where timely natural regeneration of the native plant community is not likely to occur. Non-

native, noninvasive plant species may be used ***in any of the following situations:*** 1) when needed in emergency conditions to protect basic resource values (e.g., soil stability, water quality and to help prevent the establishment of invasive species), 2) as an interim, non-persistent measure designed to aid in the reestablishment of native plants, 3) if native plant materials are not available, ***or*** 4) in permanently altered plant communities. Under no circumstances will nonnative invasive plant species be used for revegetation."

Current Trends

Non-native plant species classified as noxious weeds in the watersheds have been treated with chemical, biological control, manual, and mechanical methods. New invaders such as False Brome (*Brachypodium sylvaticum*), and sulfur cinquefoil (*Potentilla recta*) have been found in limited numbers in the watershed. Much of the area in the watershed has not been surveyed for invasive plant species and it is likely that some species are already present. Established weed species such as scotch broom (*Cystisus scoparius*), Himalayan Blackberry (*Rubus armeniacus)*, and Meadow Knapweed (*Centaurea pratensis*) have been treated as time and money allows. Table 2 shows a list of the known non-native plant species in the watersheds.

- Current and ongoing ground disturbing activities such as logging, fuels reduction projects, and road maintenance have the potential to spread and establish non-native plant species.
- Some past erosion control and forage enhancement projects planted species that continue to persist along roadsides and in meadows.
- Recreational users (hiker, mountain bikers, ATV users) spread non native species along trails in the watershed area.
- Native species were collected and will be grown out for re-seeding in the Jim's Creek project area.
- Invasive species in the Jim's Creek area will be treated as part of the project.

Table 2. Known Invasive Plant Species				
Common Name	**Scientific Name**	**Extent of Infestation**	**Current Treatment**	**Management Goal**
Butterfly Bush	*Buddelia davidsonii*	0.1	None	Eradication
Spotted Knapweed	*Centaurea maculosa*	8.7	Chemical	Containment
Meadow Knapweed	*Centaurea pratensis*	2.4	Chemical	Containment
Foxglove	*Digitals purpurea*	3.1	None	Containment
St. Johns's Wort	*Hypericum perforatum*	Not Known	None	
Purple loose strife	*Lythrum salicaria*	0.1	Hand pull	Eradication
Reed Canarygrass	*Phalaris arundinacea*	0.1	None	Containment
Giant Knotweed	*Polygonum sachalinense*	0.1	Chemical	Eradication (treated check to see if still present)
Himalayan Blackberry	*Rubus armeniacus (discolor)*	0.6	None	Minimize spread
	Total Acres	**15.2**		

STEP 6: RECOMMENDATIONS

The recommendations below are in addition to the recommendations already determined to be valid in the prior versions of the watershed analysis.

Non-Forested Special Habitats Recommendations

- Use prescribed burning to keep the disturbance regime in fire maintained special habitat communities as long as mitigation against increasing noxious weeds can be effective. (*Reference 17a, 27 UMF 1996*)
- Target non-forested special habitats for noxious weed survey and control using mechanical, biological and chemical methods within guidelines set by the Willamette National Forest's Integrated Weed Management Environmental Assessment (March 2007)
- Restore and maintain special habitat areas. (*Reference 20 UMF 1996*)

Specific Area Recommendations

The areas below are specific recommendations. Other areas that are recommended for treatment are special habitats in the Buck Creek 5th field watershed, Little Willow Creek and any planning area that has these features.

Calapooya Divide

- Reconnaissance of these meadows is needed to plan treatment methods and priorities.
- Use whip felling, tree falling, broadcast burning, and seeding with natives to restore meadows.
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Grassy Glade Meadow

- Manually pull St. John's wort, cut and chemically treat the isolated blackberry patch along the road side. Cut and scatter conifers under 10" dbh around the meadow edge and along the fingers of the meadow.

Bear Mountain Meadow

- Visit to decide treatment methods.
- Treat weeds, increase big game forage, and possibly cut encroaching conifers around meadow edge.

Rigdon Point

- This area should be visited and surveyed by fire, botany, ecology and silvicultural personnel to determine possible treatments to increase habitat for knobcone pine.

Botanical Species

- Most of the watershed has not been surveyed for sensitive species. Inventory and document sensitive species sites during project planning.(*Reference 31UMF 1996*)
- Monitor known sensitive plant locations to insure that their habitats are being maintained for the persistence of the species. .(*Reference 31UMF 1996*)
- Control or eradicate invasive species, remove vehicle access to sensitive plant sites, and manage vegetation to maintain sensitive species habitat.
- Restore and manage potential habitat for sensitive species.

Botanical Species Distribution Recommendations

(*Reference #33 UMF WA 1996)*

- Most of the watershed has not been inventoried for non-native species. Inventory and document invasive species.
- Species that are new invaders to the watershed will be targeted for eradication. Established weed populations will be prioritized for treatment and treated.
- Noxious weeds will be controlled using mechanical, biological and chemical methods within guidelines set by the Willamette National Forest's Integrated Weed Management Environmental Assessment (March 2007).
- Roads that are listed for closure in this analysis and update will be surveyed and pre-treated for invasive plant species.
- Invasive plant species in the Hills Creek Reservoir area will be treated in accordance with the related plan (Hills Creek Reservoir Plan 2008).

Revegetation Recommendations

- Genetically appropriate (local) native plant materials are the first choice for restoration and rehabilitation where timely natural regeneration of the native plant community is not likely to occur. *National Policy is Forest Service Manual Chapter 2000, Chapter 2070- Vegetation Ecology 1/14/08*
- In 2005 the *USDA Forest Service Decision Notice for Pacific Northwest Region Invasive Plant Program Preventing and Managing Invasive Plants, ROD* amended our Forest Plan to include Standard 13: "Native plant materials are the first choice in revegetation for restoration and rehabilitation where timely natural regeneration of the native plant community is not likely to occur."
- Use native local genetic seed as the first choice when seeding any areas. Use weed free or native straw for mulch.
- Areas that are disturbed from maintenance