

CHAPTER 5

ISSUE 1: WATER QUANTITY AND QUALITY

Key Questions

1. *How have upstream management activities affected water quality and quantity?*

Water quality data is lacking throughout the WAA. The Oregon Department of Environmental Quality has not listed any streams in this area on the 303(d) list. However, this is thought to be a result of limited data and not necessarily due to good water quality. The high frequency of vehicle and railroad travel within the WAA poses a possible threat of potential chemical spills. High use of the area has also resulted in a few disposal sites that should be monitored.

Hills Creek Dam regulates approximately 40% of the flow to the Middle Fork Willamette River within the WAA. Management of this flow has resulted in a loss of extreme flow events.

Roads have altered the hydrologic regime and contributed fine sediments to some drainages. Road failures have also effected water quality.

The following recommendations are suggested:

- ♦ Initiate a forum with other agencies and the public to discuss concerns, issues and recommendations regarding the Middle Fork Willamette River watershed. Consider forming a Watershed Council to address ongoing issues.
- ♦ Coordinate with Southern Pacific Railroad and Oregon Department of Transportation to ensure that emergency spill plans are activated in case of chemical spills. Monitor types of chemicals being transported.
- ♦ Coordinate with Southern Pacific Railroad and Oregon Department of Transportation in application of herbicides (*see Issue 5, page 137*).
- ♦ Coordinate with Oregon DEQ to test water quality from the vacated Hines mill site in Westfir, located upstream from the WAA.
- ♦ Coordinate with Oregon DEQ and Army Corps of Engineers to test soil for hazardous material at the "Water Tank" area. This was a storage area for the railroad and COE just west of Crale Creek adjacent to Lookout Point Reservoir.
- ♦ Coordinate with Oregon DEQ to test water quality in places where discarded railroad ties were found. There are two known sites. One is a pond just north of the railroad tracks and west of the Buckhead road where old ties were seen floating. The other is a spur road (west of the Buckhead Road and south of the railroad tracks) containing buried ties in waste material.
- ♦ Coordinate with the railroad to determine impacts from access roads constructed within the riparian zone of the Middle Fork Willamette River.

- ◆ The railroad was observed pushing soil and other debris into Lookout Point Reservoir from the Highway 58 side. Coordination may help determine if this kind of practice should continue.
- ◆ Continue working with Lane County on sidecast disposal along the North Shore Road. Find an alternative disposal site.
- ◆ Explore options to work with the USFS fire management department to develop off channel water pump channels so streams do not have to be altered.
- ◆ Upgrading or decommissioning roads should be considered through the Access and Travel Management process. This is particularly of concern in the LSR (where road maintenance will be limited) and within earthflow areas such as School Creek. Refer to Issue 3, Question 3, page 128, for a list of potential projects.
- ◆ Consider decommissioning or changing the Maintenance Level from II to I to reduce potential turbidity concerns (*see page 38*).

Data Needs

- ☆ Monitor stream temperatures to determine if any streams or the river should be listed as a water body of concern on the Oregon DEQ 303(d) list.
- ☆ The trailer park located at the mouth of Deception Creek is built on an alluvial fan deposition from a past debris flow. Conduct a stability analysis to determine if another debris flow may occur in Deception Creek which might impact the trailer park.

ISSUE 2: VEGETATION

Key Questions

1. *Where and how much matrix land is available for timber harvest within the next decade?*

Commercial Thinning Stands

An estimated 548 acres are available for potential thinning of stands >31 years old. From 1992 exam data, 268 acres have been identified as suitable in size and density for commercial thinning (*see Table 30, page 100*). These acres are located in Buckhead, Tire, Armet, and Carpet Hill Creeks. Re-examine and schedule the remaining acres.

- ◆ Commercial thin 129 acres in Buckhead drainage to prevent volume loss from mortality. Re-examine the other 177 acres and schedule treatments with priority given to thinning stands in the Buckhead drainage. This would support retaining Tire/Burnt Bridge Creeks as a dispersal corridor
- ◆ Commercial thin 63 acres in School Creek and 35 acres in Armet Creek drainages.

- ◆ In Tire Creek, re-examine all 102 acres on four units during the next five years and prescribe treatment type and date.
- ◆ Cain and Hospital Creek drainages provide no opportunities for commercial thinning this decade. Six units in these drainages were under the 31 year age limit and will need examination during the next 5-10 years.
- ◆ Rhodes Creek contains no acres for thinning.
- ◆ Rock Creek has 13 acres in unit 6009-019 requiring an exam to schedule treatment.
- ◆ Carpet Hill Creek has 33 acres in unit 6007-123 ready to thin (average DBH is 10.7"). Stand 6006-014 needs an examination.

Mature Timber Stands

Table 31 and Table 32, page 102, show the percentage of proposed treatment by decade in each management area and the approximate acres scheduled for treatment by decade. Acres of timber stands >80 years old available for treatment are shown in Table 36. No GTR or additional reductions are inferred in these numbers, but riparian acres are removed.

The scheduled treatment acres shown for Management Area 14a are estimated for a 100-year rotation. Rotations on general forest lands may vary from 80-120 years due to differences in culmination of mean annual increment (CMAI), prescription and resource constraints. Therefore, the actual scheduled treatment acres may vary from approximately 175-261 acres per decade.

Table 36 shows the location of acres available for scheduled harvest during the next decade by drainage.

Table 36. Location of Acres Available for Scheduled Harvest

Mgmt Alloc	Scheduled Harvest per Decade (Acres)	Drainages (acres available for harvest)		
		Available Acres Greater Than Scheduled Harvest/Decade	Available Acres Less Than Scheduled Harvest/Decade	Minimal Acres Available
11a	364	Carpet Hill/Hospital (567) Tire (540)	Armet/Cain (296) Buckhead (265) School (133) Rock (103)	Rhodes (0)
14a	209	Tire (1020)	Buckhead (148) School (76) Carpet Hill/Hospital (53)	Rhodes (5) Rock (1) Armet/Cain (0)
11c	149	Buckhead (306) Armet/Cain (242) Rhodes (166)	Tire (94) Rock (87) School (86)	Carpet Hill/Hospital (41)
11f	52	Armet/Cain (212) Buckhead (108) Rock (95) Rhodes (82) Carpet Hill/Hospital (62)	Tire (36)	School (3)

Late-successional forest enhancement and minimizing fragmentation should focus on inter-LSR dispersal of late-successional species. Identified areas of concern include the Tire, Burnt Bridge and Buckhead drainages (*see Chapter 4, Issue 4, Question 2, page 134*).

2. *What was the historic fire occurrence within the Middle Fork Willamette and Tributaries analysis area? How did historic fire occurrence affect vegetation? Should we reinitiate this significant disturbance in the WAA?*

- ◆ Assemble an Interdisciplinary Team to write a plan using prescribed burning as a tool to manage the meadows above North Shore Road. This could be included as a proposal during timber harvest planning. Commercial tree removal between meadows may allow enlargement of these complexes to their former size. Prescribed burning would be used to:
 - ◇ increase forage for big game (native bunchgrass rejuvenation),
 - ◇ as a method to restore fire-tolerant species such as *Camas* and tarweed, and
 - ◇ as a method to control exotic species such as Scotch broom, St. John's wort and Himalayan blackberry, which are common invasives in these habitats.

It may be unrealistic to consider burning Cloverpatch Bluffs where steepness of the area could preclude safe and effective treatment.

- ◆ Introduce prescribed underburns within timber sale areas. The objective would be to increase forage in the understory and to treat fine fuels. This may favor some rare herbaceous species such as *Montia diffusa*, whose seeds require some scarification (i.e. scratching or cracking of the seed coat) for germination. It would be helpful if timber sale boundaries followed natural topographic features to assure safe treatment of these areas (subwatersheds: Rhodes, School, Cain/Armet, Carpet Hill/Hospital, Rock, Tire, and Buckhead).

3. *What and where is the potential for large fire occurrence in the watershed? What are the causal factors for this potential?*

Based on aspect, fuel loading and ignition potential, the Buckhead-Burnt Bridge Creek area of the watershed has the highest potential for a catastrophic fire.

The following recommendations are suggested:

- ◆ During ATM process, consider maintaining more roads in this area to facilitate initial attack vehicles.
- ◆ Mitigate fuel loading from all harvest activities by yarding tree tops from commercial thins and treating all regeneration units by broadcast burning or grapple piling/burning.

- ◆ A mitigation for smoke intrusion into the Oakridge/Westfir airshed is:
 When feasible, choose alternative forms of fuel treatments such as grapple piling/burning, hand piling/burning, strip covering/burning, and yarding specs rather than broadcast burning. These alternatives foster burning during the wet season, when prevailing winds and atmospheric instability help prevent smoke intrusion into the Oakridge/Westfir airshed.

4. *Where and to what extent have natural and human caused disturbances affected special habitats and their contribution to biodiversity? What are future trends?*

- ◆ Use Access and Travel Management to recommend sites where special habitats impacted by roads may be restored. Restoration ranges from pulling culverts for natural drainage restoration to pulling fill and recontouring. Examples include:
 - ◆ Hardwoods Road 5835/515 (Section 18)
 - ◆ Rock Garden Spur off Highway 58 at MP 23 (Section 12)
 - ◆ Rock Outcrop 5847/216/212 (Section 32)
 - ◆ Mesic Meadow 5840/547 (Section 6)
- ◆ Integrate prescriptions for special habitats in timber sale planning process so degraded habitats may be restored and natural habitats may remain pristine.
- ◆ Route new trails around rather than through special habitats.

5. *Are there opportunities for stand density management within the LSR that will maintain consistency with LSR objectives and improve stand development? Where?*

(See Table 35, page 106).

- ◆ The Umpqua NF is coordinating a LSR RO222 Assessment which is in its final draft form. All future treatments proposed in the LSR will be consistent with any agreements or exemptions identified in the assessment and will tier to treatment criteria specified.
- ◆ Examine all managed stand acres identified in Table 35, page 106, with priority given to Deception, Goodman, Duval, and Rock drainages. Prescribe and schedule treatments to maintain stand health and vigor and to develop stand structure for wildlife. Treat stands which have stocking levels conducive to tree mortality or need treatment to meet other objectives.
- ◆ Assess stand density of all managed stands 10-31 years old to determine treatment required to prevent early stand stagnation and promote development of old-growth characteristics, as well as retaining tree vigor and a suitable crown length. Failure to reduce stocking levels may delay development of late-successional characteristics.
- ◆ Determine if any natural stands are <80 years old and whether stand density management is necessary to maintain consistency with LSR objectives and improve stand development.

- ◆ Identify funding available for exams and stand density management so treatments can be scheduled to maximize benefits to the stand and maintain stand health.

ISSUE 3: AQUATIC HABITAT AND SPECIES

Key Questions

1. *What is the current status and available habitat for the Oregon chub? What are the trends? What are the recommendations to assist the recovery of this species?*

Continued involvement with the Oregon Chub Working Group will help implement the Conservation Agreement and Recovery Plan for this species. The main objectives of the Conservation Agreement are to restore habitat, reintroduce populations and educate the public. Following are a list of parameters to meet these objectives:

- ◆ Continue working with ODFW to monitor Oregon chub.
- ◆ Reintroduce and/or enhance habitat in isolated ponds or in ponds containing only native fish. Preferred habitat includes abundant aquatic vegetation, minimum water flow and depositional substrate.
- ◆ When possible include Northwestern pond turtle habitat enhancement with Oregon chub restoration efforts.
- ◆ Make the Oregon chub brochure available to the public at Ranger Stations and interpretive sites to educate the public and Forest Service employees on the habitat needs and importance of this species indigenous to the Willamette Valley.
- ◆ Develop other interpretive programs.

2. *What is the current status and potential reintroduction for anadromous fish?*

Coordinate with ODFW and Army Corps of Engineers to continue supporting the possible reintroduction of spring chinook into the upper Middle Fork Willamette River.

3. *How diverse is the aquatic habitat and how have management activities affected these habitats? What are the trends?*

Middle Fork Willamette River

The alluvial section of the Middle Fork has downcut and lost much of its pool habitat and meander pattern. Restoration or enhancement of this section of the river may require a change in regulation at Hills Creek Dam to reintroduce extreme flows to the system. This is not a realistic solution due to the presence of Highway 58, the town of Westfir and other low elevation areas. However, side channel habitat may be restored.

Data Needs

- ☆ Determine feasibility and process for side channel restoration.
- ☆ Monitor for harlequin ducks.

Lookout Point Reservoir

The reservoir was not fully analyzed in this document. Partnership with ODFW and Army Corps of Engineers is recommended to determine how the aquatic resource should be managed and develop detailed habitat enhancement projects. Some recommendations for the reservoir are listed below:

- ◆ Focus revegetation for erosion control on deep, fine soils (Category 1) to minimize effects of turbidity within the reservoir. Coordinate with Army Corps of Engineers.
- ◆ Maintain Northwestern pond turtle basking sites in coves, especially on the north side of the reservoir.

Data Needs

- ☆ Coordinate with COE to monitor turbidity in the reservoir.
- ☆ Monitor Northwestern pond turtle distribution and use of reservoir and adjacent uplands.
- ☆ Survey road and railroad culverts in tributaries entering the reservoir to determine if culverts are migration barriers for resident trout during spawning season. Identify first upstream natural barrier to determine if culvert replacement or modification would allow use of upstream aquatic habitat.

Buckhead

The Buckhead Area is a unique habitat in this WAA. A new habitat management plan is needed for this Special Wildlife Habitat Management Area (SWHMA). The stream appears to have been channelized and would benefit greatly by creating a meander pattern. However, the BPA powerline right-of-way would limit this type of restoration project. Some recommended projects are identified in Issue 5, Question 1, page 136; others are listed below:

- ◆ Riparian silviculture treatment to convert the Himalayan blackberry and scotch broom riparian to a conifer stand, like the one present in 1944 aerial photos.
- ◆ Oregon chub enhancement projects could be created by building off-channel ponds and side-channel habitat.
- ◆ The railroad culvert is a low flow barrier (if not a year round migration barrier). Aquatic habitat would benefit from its modification or replacement.
- ◆ Coordinate with BPA and Southern Pacific Railroad to recommend changes in management plans. *Refer to Issue 5, Question 1, page 136, for details.*
- ◆ Consult with ODFW in developing a strategy for bullfrog population control in the Buckhead area.

- ◆ Look at the potential for creating passage ways for turtles under the railroad tracks in known use areas (Turtle Tunnels).
- ◆ Based on telemetry results, develop and protect known Northwestern pond turtle nesting habitat. This includes vegetation management, such as removal of scotch broom, and construction of enclosures.

Data Needs

- ☆ Monitor temperature and biological oxygen demand (BOD) in Buckhead Creek and associated ponds.
- ☆ Continue herptile monitoring for red-legged frogs and other species.

Tributary Streams

The Aquatic Conservation Strategy specifies a strategic approach to aquatic habitat restoration. Priority is given to restoration and maintenance of the best habitat within the WAA so these areas can function as refugia habitat. This analysis has found Goodman, North, South, and Schweitzer drainages to be in the best condition within this WAA. Second priority is then given to those drainages in poor condition, especially where known restoration projects will benefit the habitat. These drainages are Deception and School Creek. Other restoration projects, such as in Tire Creek, were identified through stream inventories and local district knowledge.

Restoration projects will primarily focus on riparian silviculture treatments (to convert stands to conifers) and road restoration. Road restoration projects are identified below and should be considered during the Access and Travel Management Process. In general, all maintenance level I and II roads within the LSR should be evaluated for decommissioning. Road decommissioning may involve pulling culverts, leveling side cast material, filling ditches, outsloping, and revegetating with native vegetation. If decommissioning is not possible, roads should at least be enhanced so they can self-maintain. This is often referred to as “weatherizing.” Weatherizing can involve building waterbars to improve drainage. These waterbars can be built adjacent to the culvert where keeping the road open to four wheel drives is important. Outsloping can also be accomplished to improve drainage. However, if this is done on roads where drainage would be diverted to flow over a steep side-cast slope, failures may occur. Therefore, outsloping should only be completed where appropriate.

Goodman Drainage

- ◆ Reach 1 has a wide, hardwood riparian zone. Riparian silviculture projects can help release the conifers adjacent to this channel.
- ◆ Decommission the last 1.5 miles of Road 5833. This road has been a chronic problem area and crosses over several tributaries in upper Goodman drainage.
- ◆ Decommission or weatherize the 5833.503 road system.
- ◆ Keep Road 5833.515 closed to motorized traffic or decommission.

North, South and Schweitzer Drainages

Upgrade or decommission the 5840.526 road system beyond Schweitzer Creek. A pump chance is located at Schweitzer, to which access should be maintained.

Data Need

- ☆ Determine if and where riparian silviculture is needed.
- ☆ Inventory aquatic habitat.

Deception Creek Drainage

- ◆ Reach 1 has a wide hardwood riparian. Riparian silviculture projects can help release the conifers adjacent to this channel.
- ◆ Large woody debris (LWD) is minimal in Reach 1. Instream placement of large wood may aid in channel stability.
- ◆ Road 5850.523 has cutbank and fill failure problems. Decommissioning is recommended for the series of roads off this system.

Data Needs

- ☆ Monitor water temperature.
- ☆ Red legged frogs are abundant in reach 1; only a few are found in reach 2. There may be an opportunity to monitor red-legged frog distribution habitat preference.
- ☆ Monitor for harlequin ducks.

School Creek Drainage

- ◆ Reach 1 and 2 have wide, hardwood riparian zones. Riparian silviculture can help release the conifers adjacent to this channel.
- ◆ Road density is very high in this drainage. It is also a source of fine sediment. Cobble embeddedness is a concern within the channel. Road decommissioning should be considered through the Access and Travel Management Process.
- ◆ There is a dirt road accessing private land off Road 5823, at the junction of Road 5821. Drainage on this access road needs improvement.

Data Needs

- ☆ Monitor temperature.
- ☆ Determine if placement of LWD would provide stability and improve habitat in reach 1.

Tire Creek Drainage

Road density is high in this drainage and may contribute to fine sediment deposition in the stream. Road decommissioning should be considered through the Access and Travel Management Process.

Data Need

- ☆ An amphibian study is needed in this drainage. Torrent salamander and tailed frog habitat is found in the upper basin in a block of unharvested land. During the stream survey, an abundance of red-legged frogs and pacific giant salamanders were observed in the mainstem of Tire Creek.

Duval Drainage

The road crossing the east fork tributary to Duval Creek failed. This is the connector between Road 5847.542 and 5840.547. Material on both sides of the stream can be removed. Consider decommissioning both roads.

Whitehead and Bridge Drainage

Data Need

- ☆ Road 5847.216 failed at Whitehead Creek. This area should be examined to determine possible restoration.

ISSUE 4: TERRESTRIAL HABITAT AND SPECIES

Key Questions

1. *How have species distribution and their habitats changed over time due to past vegetation manipulation activities? What are the future trends?*

Vegetation Management Recommendations

- ◆ Advocate for funding and develop strategy for stand density and other silvicultural treatments in managed stands within LSR RO222 to maintain health and accelerate growth toward late-successional forest conditions. Without some intermediate stand density treatment, these stands will stagnate and become increasingly susceptible to disease and falldown.
- ◆ Treatment prescriptions should focus on maintaining or enhancing species diversity within stands.
- ◆ A variety of silvicultural treatments will be utilized on matrix lands, including reforestation and regulated vegetation collection or management such as release and stocking level control. Activities such as pruning and fertilization may be used to

develop stands for certain products or maintain healthy habitats. Other treatments may be utilized as appropriate to meet resource objectives.

- ◆ Aggregate harvest units within matrix whenever feasible to minimize fragmentation and retain larger blocks of late-successional forest interior habitat as long as possible. This allows riparian reserves and other no-harvest allocations to recover from past harvest.
- ◆ Consider stand density management in managed stand portions of riparian reserves to avoid stand stagnation. This will also aid in enhancing these stands for Survey and Manage (C-3) species.

Botanical Recommendations

- ◆ Continue survey for sensitive plants during project planning.
- ◆ During weed treatment, make special habitats a high priority for treatment of both new and established weed infestations.
- ◆ Continue survey and treatment of noxious weed populations throughout the WAA. Target spotted and meadow knapweeds as highest priority for eradication (Highway 58 corridor, Roads 5824/120 and 5847/547). Survey for giant knotweed in the Willamette River corridor. Continue biological control for established infestations along roadsides.
- ◆ Use riparian silviculture techniques (planting conifers, release, if necessary) to accelerate growth of riparian stands for survey and manage riparian species. The highest priority should go to School, Crale, Buckhead, Duval, Rhodes, and Whitehead/Dell where more than $\frac{1}{3}$ of the riparian vegetation is in early seral condition.
- ◆ Where sugar pine is a natural component of the stand (ex. Deception), promote regeneration of this species by creating small openings within stands. This will also function to increase wildlife forage habitat.
- ◆ Consider use of prescribed burning as a technique to encourage fire-tolerant herbaceous species and as an experimental weed eradication on south-facing slopes above Lookout Point Reservoir (*see Issue 2, Question 2, page 123*).

Wildlife Recommendations

Data Needs

- ☆ Monitor potential sites for peregrine falcons using established survey protocol guidelines.
- ☆ Continue to monitor effectiveness of the mine closure which benefits the Townsend's big-eared bat. Ascertain whether continued human vandalism and disturbance at this site is influencing bat use of the cave.

Big Game

- ◆ Decrease open road densities in the watershed. Table 37 shows a recommended list of potential temporarily or permanent road closures consistent with current forest plan allocations and standards and guidelines. Closure is recommended based on impacts to big game and/or aquatic concerns (see Issue 3, Question 3, page 126).

Table 37. Recommended Road Closures by Drainage

School/Rhodes Creek	◆5823-104 just past the junction accessing Giustina land (approx. 1 mile). ◆5823-108 (approx. 1 mile) ◆5823-115 (approx. 1 mile)
Armet Creek	◆5824-116 closes approx. 3 miles of road including the 112, 113 and 116 spurs.
Tire Creek	◆5826-132 (approx. .5 mile) ◆5826-133 (approx. 1 mile)
Goodman Creek	◆5833-504 (approx. 3 miles) ◆5833 just past spur to BLM rock pit (approx. 6 miles) ◆5833-507 (approx. 1 mile) ◆5833-518 (approx. 1.5 miles)
Crale Creek	◆5835-515 already gated for Bald Eagle Management Area from Jan. 1 to Aug. 31. Extend season of closure to year round.
Schweitzer/ North/ South Creeks	◆5840-526 (approx. 3.5 miles)
Whitehead Creek	◆5847-546 (approx. 5 miles) ◆5847-214 and 215 (approx. 1.5 miles) ◆5847-216 (approx. 3 miles) ◆5847-535 (approx. .3 mile)
Deception Creek	◆5850-523 (approx. 5.5 miles) Major maintenance problems ◆5850-529 into Deception Rock (approx. 1 mile)

- ◆ Maintain adequate thermal cover in critical winter range portions of the watershed.
- ◆ Explore opportunities for establishing permanent foraging areas in LSR RO222 by maintaining or enhancing meadow habitats in areas where encroachment is occurring. Target areas of documented high big game use.

Snag Habitat

- ◆ Focus snag creation and CWD recruitment in younger natural and managed stands lacking these stand components. Rely on existing stand exam information or collect additional snag inventory data to support snag creation/inoculation work. Stands suspected of snag and CWD deficiency are found in the Goodman Creek, Carpet Hill, Armet, Hospital and Tire Creek drainages.
- ◆ Continue monitoring fungus inoculation of thinned natural stands in the Bridge Creek area. Inoculation was conducted in FY 1996 and a long term monitoring strategy has been established for assessing decay rates in treated trees.

Northern Spotted Owl

- ◆ Continue to analyze and monitor dispersal (11-40) conditions within the WAA.
- ◆ Maintain adequate 11-40 conditions in the interim until no-harvest allocations recover from past management activities.
- ◆ Relocate the 100-acre spotted owl core for activity center 2881. This core was established using limited field survey data. Survey information indicates activity has shifted to the upper end of the drainage. The emphasis of this 100-acre core relocation is to protect late-successional old-growth instead of the mature second growth where the core is presently located.

Data Need

- ☆ Update the OHAB layer in GIS based on field surveys to accurately represent current habitat conditions.

Great Gray Owl

- ◆ As timber sale activities are planned and implemented, monitor for GGO presence using latest recommended protocol guidelines.
- ◆ Implement habitat improvement projects for this species by maintaining natural meadow foraging areas and installation of artificial GGO nest platforms.

Red-legged Frog

- ◆ Assess stream survey information for distribution and abundance of red-legged frogs.
- ◆ Determine possible differences in habitat conditions based on presence/absence in certain drainage stream reaches (ex. Deception Creek).

- ◆ Continue to monitor other known red-legged frog breeding sites and survey newly discovered sites.

2. *Are there any priorities for maintaining or enhancing late successional forest conditions to provide for dispersal and movement of plant and animal species? If so, where?*

Emphasis should be on maintaining or enhancing late-successional forest conditions in Tire, Burnt Bridge and Buckhead drainages. Map 27 displays a potential area of concern regarding connectivity between LSRs. Identification of this area is based on concerns that development along the Middle Fork corridor could prove to be a major barrier for late-successional forest species movement and dispersal. Delineation of this area is accompanied with the following recommendations for late-successional forest habitat alteration:

- ◆ If regeneration harvest is planned in this area, create larger openings clustered around existing managed stands to minimize fragmentation.
- ◆ Stand enhancement activities (precommercial and commercial thinning) should be implemented in the Tire, Burnt Bridge and Buckhead drainages to promote stand development. Emphasis would be on the 300 acres currently available for commercial thinning in the Buckhead area (*see Issue 2, Question 1, page 122*).
- ◆ Maintain the contiguous stand of interior habitat in upper Tire Creek for as long as feasible.
- ◆ The Willamette NF LSR Assessment Team should assess the importance of this area as they consider inter-LSR dispersal conditions.
- ◆ Explore alternative prescriptions to maintain higher canopy closure in harvested stands of this area.
- ◆ Focus on pre-commercial and commercial thinning prescriptions (especially in no-harvest allocations) to encourage conifer growth and late-successional forest development.

Continue strategy identified in the Winberry Watershed Analysis to maintain ridgetop late-successional forest stands as a moderate priority for harvest due to the value of ridgetop stands as dispersal avenues for many wildlife and plant species. Maintain interdrainage connectivity by retaining late-successional forest stands along ridgetops (ex. upper reaches of East Fork School Creek, Carpet Hill Creek, and Hospital Creek).

3. *Can the Buckhead Special Wildlife Habitat Area (SWHA) be managed as late-successional habitat? Are there any proposed management activities not consistent with LSR objectives?*

Most recommendations and actions enhancing habitat for the Western pond turtle and Oregon chub will be consistent with late-successional forest objectives, although a few actions may not. Recommendations follow:

- ◆ Enhance conditions conducive to development of late-successional and old-growth forests; identify places in the SWHA where riparian silviculture (conifer planting in the understory) is appropriate. Some areas may be too moist to sustain conifer forests.
- ◆ Develop an updated Buckhead Management Plan which would include a desired future condition for the area and recommended activities for restoration of riparian species.
- ◆ Types of activities that will typically aid in habitat restoration for the Oregon chub and Western pond turtle include:
 - ◇ creation of basking habitat for the Northwestern pond turtle by felling trees into ponds and streams,
 - ◇ pond creation to enhance chub habitat,
 - ◇ prescribed fire to enhance forage for big game (high use area) and nesting opportunities for the turtle,
 - ◇ extensive scotch broom and Himalayan berry eradication (noxious weeds), and/or
 - ◇ maintain the BPA right-of-way in a more open, noxious weed-free condition to promote Western pond turtle nesting success



Figure 17. Buckhead Pond

ISSUE 5: HUMAN USES

Key Questions

1. *What current or potential future effects do non-Forest Service special uses and right-of-ways such as the railroad, Highway 58 and Bonneville Power Administration have on species and habitats?*

All recommendations listed below are accompanied by a basic suggestion to communicate effectively with the appropriate agency in voicing concerns and working together to solve some of the identified problems.

Bonneville Power Administration

- ◆ Address timing of regular maintenance activities within the Buckhead and North Shore areas due to conflicts with turtle nesting activity and big game use. It is critical that the areas designated remain undisturbed from May 1 to July 31 while turtles leave ponds to nest. Depending on where turtle nests are found, this window could be extended to avoid possibilities of nest destruction from maintenance activities. Big game use is high within the Buckhead SWHA throughout the year. Coordinate maintenance operations to reduce impacts on big game. Harassment of big game is most easily avoided by scheduling activities during summer months.
- ◆ Review Regional MOU with BPA and recommend reduction in maintenance intervals for felling of hazard trees. It is thought that this agreement is renewed once every 15 years. This would be applicable only within the SWHA and other identified critical areas along the BPA right-of-way.
- ◆ Alter maintenance schedule and methodology to fell only trees which could immediately affect powerlines. Cooperate with BPA in reducing maintenance interval to five years within the Buckhead SWHA.
- ◆ Inquire into potential herbicide use by BPA within the SWHA. Explore recommending alternative treatments if herbicides applied immediately adjacent to the aquatic system.
- ◆ Meet with BPA and Southern Pacific Railroad officials to update them on our concerns regarding wildlife habitat water quality.
- ◆ Explore alternative funding sources through the BPA as mitigation for impacts from right-of-way maintenance. This could include noxious weed control and maintenance and possible Western pond turtle enhancement work.

Southern Pacific Railroad

- ◆ Work with SP Railroad to determine if culverts presenting fish migration barriers can be removed if their removal provides access to suitable habitat upstream.
- ◆ Communicate concerns and coordinate cleanup of possible inappropriate disposal of waste material and used railroad ties adjacent the Buckhead area.

- ◆ Herbicide use along railroad lines could affect species and their habitat as a result of leaching or overland flows. This is of particular concern in the Buckhead pond area. Propose alternative methods of vegetation control along the railroad adjacent to the Buckhead system (manual or mechanized) and other areas of concern (*see Issue 1, page 121*).
- ◆ Assess the potential to provide turtle passage underneath the tracks to suitable nesting habitat opposite the Buckhead ponds.

Data Needs (Human Uses)

- ☆ Check on status of MOU and licensing timelines for BPA powerline maintenance through USFS lands.

2. *What are the trends of recreational and human use in the watershed?*

There is a growing demand for primitive and semi primitive settings, especially close to urban areas (SCORP, 1994). Careful planning, including a comprehensive analysis of the area's natural resources and human use patterns, will help determine the resource base's capability to support/sustain multiple uses, including recreation. Scientific information regarding carrying capacity (see Appendix B) of ecosystems is either inaccessible to recreation providers, or does not exist. To assure the future availability of a wide range of recreation opportunities and a healthy ecosystem, collaboration between federal agencies and the public is essential.

The following recommendations are suggested:

- ◆ Effectively use trail and OHV education to achieve the greatest benefit for recreation resources.
- ◆ Keep management areas designated for future recreation sites (Goodman creek and Lakeview campgrounds) available, to provide future recreation opportunities.
- ◆ Maintain and upgrade trails to accommodate higher levels of use as well as increased equestrian and mountain bike usage.
- ◆ Create a multi-agency partnership with Federal, State and local agencies to educate visitors in reducing their impacts on the environment when using natural settings (fire prevention, vandalism, water safety, off-highway vehicles, and littering).
- ◆ Work with the Army Corps of Engineers to develop an Off Highway Vehicle management plan in the draw-down area of Lookout Point Reservoir.

Data Need

- ☆ Conduct a Limits of Accessible Change (LAC) survey of the watershed recreation areas.

3. *What effect will these trends have on forest management guidelines and on wildlife species and their habitats?*

- ◆ As population increases in the adjacent metropolitan areas, demand for more accessible hunting areas will increase. Continue to manage open road densities to meet WNF LRMP standards and guidelines in conjunction with providing road accessible hunting areas.
- ◆ The entire WAA north of the Middle Fork Willamette River is high use big game winter range. Cooperate with ODFW in establishment of quality hunt areas with limited motorized access in the Carpet Hill and Tire drainages.
- ◆ As trail use increases from diverse user groups, the demand to maintain the system will increase, especially during seasons when wildlife could suffer impacts from maintenance disturbance (i.e. chainsaw operations and other mechanized activities). Educate the public regarding these activities' impacts on wildlife.
- ◆ Continue to assess use of OHVs in the draw-down zone of Lookout Point Reservoir and their potential impacts on bald eagles and other wildlife using the area.
- ◆ Update interpretive signs in the Buckhead Special Wildlife Habitat Area to accurately describe the uniqueness of the Buckhead system.
- ◆ Recommend a permanent restriction on firearms in the Buckhead SWHA. Due to the close proximity of Highway 58, Road 5821 and the nature trail, the area is not conducive to firearm discharge. Coordinate with USFS Law Enforcement and Oregon State Police.
- ◆ Recommend road management guidelines discouraging "tie-through" roads that could assist in successful poaching on USFS lands.
- ◆ Monitor Crystal Mine closure for bat use and human vandalism.

Data Need

- ☆ Monitor for presence of Harlequin ducks in the Middle Fork Willamette River above Lookout Point Reservoir and lower Deception Creek. Assess impacts of disturbance on the duck from increased recreational and commercial guide use of the river.



Figure 18. Hampton Campground