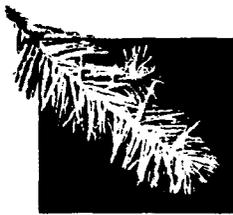


Appendix 3 - Changes to DNR's draft Habitat
Conservation Plan

APPENDIX

3.



Appendix 3. Changes to DNR's draft Habitat Conservation Plan

3.1 Summary of Major Changes to the HCP in Response to Public Comment

SPOTTED OWL STRATEGY

In planning management activities, DNR will consider any updated information provided by the USFWS on the location of spotted owl site centers in designated NRF areas.

When harvesting spotted owl habitat outside of designated NRF areas, DNR will consider recommendations of the USFWS for scheduling potential take of spotted owl site centers during the first decade of the HCP.

In the Klickitat Planning Unit, a portion of the designated NRF area has been shifted south to the middle portion of DNR's Buck Creek Block.

Some dispersal habitat area shifted from the North Puget Planning Unit to the Columbia Planning Unit and Klickitat Planning Unit.

MARbled MURRELET INTERIM STRATEGY

Interim

Outside of Southwest Washington (defined as west of Interstate 5 and south of Highways 8 and 12 from Olympia to Aberdeen), surveyed, unoccupied habitat will be released for harvest if it is not within 0.5 mile of an occupied site, and if, after harvest, at least 50 percent of the suitable marbled murrelet habitat on DNR-managed lands in the WAU would remain.

In Southwest Washington (as defined above) surveyed, unoccupied habitat will not be released for harvest unless (a) the long-term plan for the applicable planning unit has been completed, or (b) at least 12 months have passed since the initiation of negotiations of the draft long-term plan without completion of those negotiations.

Once the habitat relationship study is begun within a planning unit, the inventory survey and development of the long-term plan will follow uninterrupted; there will be no time gaps between these steps of the interim strategy.

OTHER LISTED SPECIES

Peregrine Falcon

Surveys will be conducted for aeries at cliffs judged to have potential for use by peregrines.

Trees will be retained along top and base of cliffs judged suitable for aeries.

RIPARIAN STRATEGY

The riparian buffer width will be measured from the outer margin of the 100-year floodplain.

Type 4 and 5 waters classified after January 1, 1992 are assumed to be correctly classified. Type 4 and 5 waters classified prior to January 1, 1992 must either have their classification verified in the field or be assumed to be Type 3 waters.

A more complete and thorough road management strategy has been developed for the HCP. The strategy addresses road design, construction, use, maintenance, and abandonment.

All distances will be measured as horizontal distance, instead of slope distance.

MULTISPECIES STRATEGY

Talus

A distinction has been made between forested and nonforested talus and increased protection has been provided for nonforested talus.

Cliffs

Increased protection of cliffs has been provided, especially for cliffs that are judged suitable for peregrine falcon aeries.

Snags

Additional measures to retain existing large snags and green trees for the recruitment of future snags have been added to the HCP. An average of at least three snags shall be retained for each acre harvested, and, if available, snags retained will be at least 15 inches dbh and 30 ft tall. An average of at least 5 green trees will be retained for each acre harvested.

Balds

A conservation measure was added to protect balds. Road construction through balds shall be avoided, provided that routing of roads around balds can be accomplished in a practicable manner that is consistent with other objectives of a comprehensive landscape-based road network planning process.

Mineral Springs

Conservation measures were added to protect mineral springs. Management activities within 200 ft. of known mineral springs will be designed to retain adequate trees for perching and maintain berry, fruit, and mast producing trees and shrubs.

Seeps

Conservation measures have been added for seeps. Seeps greater than 0.25 acres will be treated as forested wetlands. That is, such features will be protected where part of an unstable hillslope. Research to study the affects on aquatic resources of forest management in around seeps and small wetlands will be included in the research program for Type 5 waters.

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3.2 Revisions to the Habitat Conservation Plan

Contents:

Executive Summary No change

I. Introduction

DNR's Habitat Conservation Plan No change

Species Covered by the HCP No change

Land Covered by the HCP

pg. I.2 - change second full paragraph:

In Washington, the range of the northern spotted owl includes all of the western part of the state as well as lands on the east slopes of the Cascade Range. ~~DNR's habitat conservation plan covers DNR managed trust lands within the spotted owl's range, except for those lands classified as urban or agricultural in DNR's geographic information system or leased for urban uses.~~ This HCP covers all DNR managed forest lands within the range of the northern spotted owl, excluding those lands designated as urban or leased for commercial, industrial, or residential purposes and those lands designated as agricultural. All DNR management activities on these lands are covered. The total area of trust lands covered by the HCP is approximately 1,630,000 acres, of which all but about 50,000 acres are forested...

pg. I.5 - change the last paragraph:

While not subject to the HCP, DNR is given credit for the habitat contributions provided by these lands in terms of meeting the conservation objectives of the HCP. Whether these lands continue to provide this such contributions to the conservation objectives, and the remedy if they do not, will be discussed at each of the scheduled comprehensive reviews. (See the Implementation Agreement.) ~~DNR's management of the Natural Area Preserves and Natural Resource Conservation Areas is not expected to increase the level of take for any species covered by the incidental take permit. DNR's management of these lands shall maintain the conservation objectives described in Chapter IV of the draft HCP. Should an unforeseen circumstance arise that increases the level of take, DNR will follow the process for making a major amendment to the HCP and FTP as outlined in the Implementation Agreement. Management of Natural Area Preserves and Natural Resource Conservation Areas is not intended to alter DNR's obligations for mitigation as set forth in this HCP.~~

Organization of the Planning Area No change

II. Planning Context

The Trust Duties No change

The Endangered Species Act No change

Federal Plans and Rules for Recovery of the Northern Spotted Owl and Marbled Murrelet	No change
Other Wildlife Statutes and Regulations	No change
Environmental Laws	No change
The State Forest Practices Act	No change
DNR's Forest Resource Plan	No change

III. Biological Data for Species Covered by the HCP

A. Northern Spotted Owl	No change
Species Ecology/Literature Review	No change
Spotted Owls on the Olympic Peninsula	No change
DNR's Survey Data	No change
B. Marbled Murrelet	No change

Species Ecology/Literature Review

pg. III.42 - insert paragraph before subheading Mortality at Sea:

The Service has designated critical habitat for the marbled murrelet (61 Federal Register no. 102 pp. 26255-26320). Most of this habitat designation includes lands that are to be managed as Late Successional Reserves under the President's Northwest Forest Plan (USDA and USDI 1994 a and b). Some nonfederal land has been included, the vast majority of which is DNR-managed land. Most of this land occurs in southwest Washington and on the Olympic Peninsula. The Service will conduct an assessment of the effects of the proposed HCP on designated critical habitat on DNR-managed lands in its Biological Opinion.

DNR's Forest Habitat Relationship Studies

pg. III.45 - insert into the first paragraph following the Definitions section:

Observations will be made and data recorded according to procedures described in Methods for Surveying Marbled Murrelets in Forests: A Protocol for Land Management and Research (Ralph et al. 1994) and its 1995 supplement (Ralph et al. 1995b) and any subsequent updates or modifications as required by the Service.

C. Other Federally Listed Species Within the Range of the Northern Spotted Owl

Oregon Silverspot Butterfly	No change
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Aleutian Canada Goose

pg. III.47 - delete fourth paragraph and replace with:

The Aleutian Canada goose (*Branta canadensis leucopareia*), a subspecies of the Canada goose, was downlisted by the federal government from endangered to threatened in 1990 (Federal Register v. 55, p. 51112). The subspecies is listed as endangered by the state. The subspecies is distinguished from the other locally ubiquitous species by a broad white

ring at the base of the neck. A major cause of the early decline of the Aleutian Canada goose was predation by foxes and other small mammals in the subspecies' nesting areas which are located on Buldir and Chagulak islands in the Aleutian Archipelago and on Kaliktagik in the Semidi Islands in Alaska. In the early 1800s, foxes were introduced onto the Aleutian Islands and neighboring islands as a fur supply, and some rodents were inadvertently introduced with the landing of ships. The winter range was not defined until the early 1970s. Wintering areas extend from Alaska to California and into parts of Japan. From less than 800 individuals in 1975, their numbers have increased to 12,000-14,000 individuals in 1994. The most recent counts indicate about 20,000 individuals. Currently the San Joaquin Valley, Northern California coast, and Sacramento Valley form the subspecies' main wintering area, but they also winter in western Oregon and southwestern Washington. They regularly stop in the Willamette Valley of Oregon in September or October. Their winter range is expanding as the population increases. The species may occur in the area covered by the HCP but only as a migrant or winter resident. Habitat used during migration or winter residency includes lakes, ponds, wetlands, grasslands, and agricultural fields. Control of foxes, use of seasonal Canada goose hunting closures to reduce incidental take, and conversion to nontoxic shot have all contributed to the recovery of the subspecies.

Bald Eagle	No change
Peregrine Falcon	No change
Gray Wolf	No change

Grizzly Bear

pg. III.50 - change first paragraph under heading Grizzly Bear:

...However, these habitats alone would not be sufficient for supporting this species. Areas with little human disturbance may be preferred as habitat; ~~however, no actual analysis has been conducted in Washington to confirm this speculation (Almack et al. 1993)~~ many studies have shown the potential negative effect of human disturbance on grizzly bears (McLellan and Shackleton 1988; Kawsorn and Manley 1989; Mace and Manley 1993).

pg. III.50 - change second paragraph under heading Grizzly Bear:

All naturally vegetated land types are considered suitable grizzly bear habitat. Den sites of grizzly bears can be found in nearly any type of forest, but are typically in coniferous forests. Bears normally select den sites on steep slopes ~~above 5,670 feet~~ near the tree line (Almack 1986). Bears forage in many vegetation types in order to obtain sufficient plant and animal foods...

Columbian White-tailed Deer	No change
D. Salmonids and the Riparian Ecosystem Introduction	No change
Anadromous Salmonid Life Cycle	No change

Bull Trout Life Cycle

pg. III.54 - change first paragraph under "Bull Trout Life Cycle"

The bull trout is a ~~category 1~~ candidate for federal listing. The genus *Salvelinus*, also known as Charr, belongs to the family Salmonidae...

Salmonid Habitat Needs and the Riparian Ecosystem
Status and Distribution

No change

No change

E. Other Species of Concern in the Area Covered by the HCP

pg. III.75 - add second paragraph:

At the time of writing the draft HCP and the draft EIS, the USFWS used a system of classifying species that were candidates for listing as threatened or endangered into separate categories. Category 1 species were those for which the Service had sufficient information to issue a proposal for listing. Category 2 species were those for which existing information indicated that listing was possibly appropriate but sufficient data did not exist on the biological status of the species or threats to that species to warrant the issuance of a proposed rule. Both category 1 and category 2 species were considered as species of concern on the draft HCP and EIS. On February 28, 1996, the Service published an updated list of candidate species using a revised categorization system in the (Federal Register v. 61 no. 7596; USFWS 1996). Former category 1 species are now referred to simply as candidates for listing. Former category 2 species are no longer considered candidates for listing, though most of them have been retained on a list of federal species of concern (Federal Register v. 61 no. 26256 and USFWS list (1996)). There are now two species in the HCP planning area that are candidate species - the spotted frog and bull trout. This appendix of the FEIS now reflects the change in federal candidate status of unlisted species of concern. Descriptions of former category 2 taxa are retained and still considered species of concern for the purposes of this HCP.

Candidate Species for Federal Listing, State-listed Species, and Candidate Species for State Listing

Mollusks

pg. III.78 - change first paragraph:

At least 120 species of mollusks occur in Washington. However, many species have yet to be described, and the distribution and habitat requirements of those that have been described are still not well understood (Frest 1993; Frest and Joannes 1993; Neitzel and Frest 1993). None of the 120 species are currently listed by either the federal or state government. ~~Four are candidates for federal listing~~ (Federal Register v. 59, no. 58982 9028); Three are federal species of concern (Federal Register v. 61 no. 7596; USFWS 1996) and numerous others are species of special concern.

pg. III.78 - change second paragraph:

This section is a summary of information obtained primarily from three mollusk experts: T. Burke (Washington Department of Wildlife), T. Frest (Deixis Consultants, Seattle), and A. Stock (Washington Natural Heritage Program). It addresses only the three federal candidate species of concern that may occur in the area covered by the HCP...

Arthropods

pg. III. 79 - change second full paragraph:

Six species of arthropods that are known to occur or may occur in the HCP planning units are considered species of concern. One is federally listed (see Section C of this chapter titled Other Federally Listed Species) four are candidates for federal species of concern listing (Federal Register v. 59, no. 219, p. 58982-9028), and one is a candidate for state listing.

pg. III.79 - change paragraph under heading Beller's Ground Beetle:

The Beller's ground beetle (*Agonum belleri*) is a candidate for federal species of concern and a candidate for state listing (WDW 1993a). It occurs exclusively in eutrophic sphennum bogs of Washington, Oregon, and southwestern British Columbia (Johnson 1986; WDW 1991) that are associated with lakes below 3,280 feet in elevation, where it likely scavenges plant and animal material (Dawson 1965; WDW 1991)...

pg. III.79 - change paragraph under heading Hatch's Click Beetle:

Hatch's click beetle (*Eanus hatchi*) is a candidate for federal species of concern and a candidate for state listing (DW 1993a). Like Beller's ground beetle, Hatch's click beetle inhabits eutrophic sphagnum bogs in or near lakes at less than 3,280 feet in elevation (WDW 1991)...

pg. III.79 - change paragraph under heading Fender's Soliperlan Stonefly:

Fender's soliperlan stonefly (*Soliperla fenderi*) is a category 2 candidate for federal species of concern listing. One specimen was collected from St. Andrews Creek in Mount Rainier National Park...

pg. III.80 - change paragraph under heading Lynn's Clubtail:

Lynn's clubtail (*Gomphus lynnae*) is a category 2 candidate for federal species of concern listing. This species of dragonfly is known to prefer large rivers, but it has also been recorded at mountain lakes...

Fish

pg. III.80 - change paragraph under heading Fish:

Four federal candidate species of fish considered federal species of concern (Federal Register v. 59, no. 219, p. 58982-9028 v. 61 no. 7596, USFWS 1996), not including anadromous salmonids and bull trout, are known to occur in the HCP planning units; one of these species is also a candidate for state listing. Anadromous salmonids and bulltrout are discussed in Section D of this chapter titled Salmonids and the Riparian Ecosystem.

pg. III.80 - change paragraph under heading River Lamprey:

The river lamprey (*Lampetra ayresi*) is a federal ~~candidate for listing as a threatened~~ species of concern. The main threats to its continued existence are thought to be dams on mainstream rivers and habitat degradation...

pg. III.81 - delete the heading Green Sturgeon and two related paragraphs

pg. III.81 - change paragraph under heading Olympic Mudminnow:

The Olympic mudminnow (*Novumbra hubbsi*), a candidate for ~~both federal (category 2)~~ state listing in Washington, is jeopardized by its limited distribution and population isolation in drainages along the west coast of Washington, the Chehalis River, and the lower Deschutes River (Meldrim 1968; Harris 1974, Wydoski and Whitney 1979).

Amphibians

pg. III.81 - change last paragraph on page:

Seven species of amphibians that occur in the area covered by the HCP are considered species of concern. ~~Five are~~ One is a candidates for federal listing (Federal Register v. 59, no. 219, p. 58982-9028), and ~~four are federal species of concern~~. One of these is already listed by the state...

pg. III.82 - change first paragraph under heading Larch Mountain Salamander:

The Larch Mountain salamander (*Plethodon larselli*) is a ~~category 2 candidate for federal listing species of concern~~; it is already listed by the state as sensitive (WDW 1992a). It was first described a subspecies of the Van Dyke's salamander (*Plethodon vandykei*) (Burns 1954).

pg. III.83 - change first paragraph under heading Tailed Frog:

The tailed frog (*Ascaphus truei*) is a federal ~~candidate for listing as a threatened species of concern~~. Its range lies between the Cascades and the Pacific coast from southwestern British Columbia to northwestern California, with a disjunct ~~portion area~~ in southeast Washington, northeast Oregon, and central Idaho (Leonard et al. 1993)...

pg. III.84 - change first paragraph under heading Northern Red-legged Frog:

The northern red-legged frog (*Rana aurora aurora*) is ~~currently a category 2 candidate for federal listing species of concern (WDW 1993a)~~. Northern red-legged frogs inhabit moist and riparian forests, typically below 2,790 feet in elevation in the Pacific Northwest (Nussbaum et al 1983; Stebbins 1985)...

pg. III.85 - change first paragraph under heading Cascades Frog:

The Cascades frog (*Rana cascadae*) is ~~currently a category 2 candidate for federal listing species of concern (WDW 1993a)~~. It is found in the Olympic Mountains and in the Cascade Range of Oregon, Washington and northern California, typically above 2,625 feet and in small bodies of water rather than in large lakes (Syype 1975; O'Hara 1981; Nussbaum et al. 1983)...

pg. III.85 - change last paragraph on page:

The spotted frog (*Rana pretiosa*) is currently a candidate for both federal (~~category 1~~) and state listing (WDW 1993a; Federal Register v. 61 no. 7596; USFWS 1996). Historically, spotted frogs ranged north to extreme southeastern Alaska, south to central Nevada and central Utah, and east to western Montana and northwestern Wyoming...

Reptiles

pg. III.86 - change first paragraph under heading Reptiles:

Two species of reptiles that occur in the area covered by the HCP are considered species of concern. One is a ~~candidate for federal listing species of concern~~ (Federal Register v. 59, no. 219, p. 58982-9028 v. 61 no. 7596; USFWS 1996) and is already listed by the state; the other is a candidate ~~only~~ for state listing.

pg. III.86 - change last paragraph on page (under heading Northwestern Pond Turtle):

The northwestern pond turtle (*Clemmys marmorata marmorata*) is currently a ~~category 2 candidate for federal listing species of concern~~ and is listed by the state as endangered (WDW 1993a). This species occurs at elevations from sea level to 6,000 feet from extreme southwestern British Columbia to the Sacramento Valley in California, principally west of the Sierra-Cascade crest (Bury 1970; Stebbins 1985)...

Birds

pg. III.88 - change first paragraph on page (under the heading Birds):

In addition to the northern spotted owl and marbled murrelet, ~~15~~ bird species that occur in the area covered by the HCP are considered species of concern. Three of these species are federally listed and are discussed in Section C of this chapter titled Other Federally Listed Species. Five bird species are ~~candidates for federal listing species of concern~~ (Federal Register v. 59, no. 219, p. 58982-9028 v. 61 no. 7596; USFWS 1996), one is already listed by the state, and seven more are candidates for listing only by the state.

pg. III.88 - change first paragraph under heading Harlequin Duck:

The harlequin duck (*Histrionicus histrionicus*) is a federal ~~candidate for listing as a threatened species of concern but~~ and is also a state game animal (WDFW 1995b). Harlequin nesting success is highly sensitive to human disturbance...

pg. III.88 - change the paragraph under heading Northern Goshawk:

The northern goshawk (*Accipiter gentilis*) is a state (WDW 1993a) ~~and federal~~ candidate for listing as a threatened species ~~and a federal species of concern~~...

pg. III.90 - change paragraph under heading Black Tern:

The black tern (*Chlidonias niger*), a ~~category 2 candidate for federal listing species of concern~~ is a common summer resident in eastern Washington and a migrant in western Washington (Wahl and Paulson 1991). It appears to migrate primarily along the coast (Haley 1984), but probably uses the Columbia River as a route from breeding areas in eastern Washington and British Columbia.

pg. III.92 - change paragraph under heading Olive-sided Flycatcher:

The olive-sided flycatcher (*Contopus borealis*) is a federal ~~candidate for listing as a threatened species of concern~~. There may be evidence of a decline in the number of olive-sided flycatchers in the western United States, although data is ~~are~~ weak and the causes of this decline are uncertain (Hejl 1994; DeSante and George 1994)...

pg. III.92 - change the paragraph under heading Little Willow Flycatcher:

The little willow flycatcher (*Empidonax traillii brewsteri*) is a federal ~~candidate for listing as a threatened species of concern~~. Data indicate a decline in the number of little willow flycatchers in the Pacific Northwest (Paulson 1992), although there is uncertainty about the causes...

Mammals	No change
F. Listed and Candidate Plants	No change
Non-vascular Plants and Fungi	No change

Vascular Plant Taxa of Concern

pg. III.100 - delete last heading and last paragraph on page replace with:

FEDERAL CANDIDATE AND SPECIES OF CONCERN

There are numerous vascular plant taxa known to occur, or suspected of presently occurring, in the area covered by the HCP that are candidates for federal listing under the Endangered Species Act or are species of concern to the U.S. Fish and Wildlife Service. These are listed in Tables III.16 and III.17. Additional information about these species can be obtained from DNR's Natural Heritage Program.

IV. The Habitat Conservation Plan

A. Minimization and Mitigation for the Northern Spotted Owl in the Five West-side and All East-side Planning Units	No change
Conservation Objective	No change

Conservation Strategy for the Five West-side Planning Units

pg. IV.3 - last paragraph:

Lands identified to provide demographic support and to contribute to maintaining species distribution shall be managed as NRF habitat. For the purposes of this HCP, NRF refers to habitat that is primarily high quality roosting/foraging habitat with sufficient amounts of nesting structure interspersed so that the entire area can be successfully utilized by reproducing spotted owls. See description of rationale for habitat definitions later in this section. Lands identified to facilitate dispersal shall be managed as dispersal habitat. Stand conditions for each of these habitat types are defined below. DNR-managed lands selected for NRF habitat management and dispersal habitat management are shown for each of the five west-side planning units in Maps IV.1-IV.5.

pg. IV.4 - fifth paragraph:

The amount of habitat on the combination of DNR NRF areas and federal reserves existing at the time timber harvest is planned for a WAU that contains designated NRF areas will be determined using the best information available. As the HCP is implemented, the amount of habitat on DNR-managed lands shall be field verified through a landscape assessment process. After initial field verification, habitat levels in WAUs containing DNR NRF management areas should be assessed every 10 years. DNR will not be required to field-verify habitat in federal reserves, but will rely on updated federal habitat inventories for lands within federal reserve status. Depending on the habitat conditions that exist at the time a WAU is entered for timber management, one of four possible scenarios would apply:

pg. IV.6 - add new subparagraph (c):

If more than 200 acres of sub-mature habitat occurs in the area in which this habitat serves as a buffer, and the WAU is over its habitat target, the amount over 200 acres can be harvested. Habitat of equal or better quality that is adjacent to a portion of the 300 acre nest patch or the remainder of the original 200 acre sub-mature buffer that will not be harvested must be immediately available to replace what is harvested - i.e., this provision cannot result in a degradation of habitat quality around the nest patch. If such harvest is planned during the breeding season, the harvest unit will be surveyed for spotted owl occupancy. Survey stations will be established such that an area 0.25 mile beyond the sale unit boundary is covered by the surveys. Four visits will be conducted in a single year at least one week apart. If a detection is made within the harvest area or within 0.25 mile of it, seasonal restrictions will apply. If no detections are made, the sale unit will be available for harvest for four years.

pg. IV.6 - change subparagraph (c) to subparagraph (d) and change text:

(e d) Nest habitat patches shall consist of the highest quality nesting habitat available in each 5,000-acre block and shall be identified using one of the following methods, listed in order of preference. Identification of nest habitat patches shall occur during the first year of HCP implementation. The Services will review placement of nest patches at the 1-year review.

pg. IV.6 and IV.7 - change paragraph i:

The location of known status 1 and 2 spotted owl site centers (sites where spotted owl pairs have been located) should be used as a starting point for delineating 300 acres of nesting habitat...All available Type A habitat should be included before Type B habitat is counted as part of a 300-acre nest patch.

pg. IV.7 - change paragraph iii:

...Forest stands that meet the Type A or B definitions can be counted toward the 300 acres of nesting habitat. All available Type A habitat should be included before Type B habitat is counted as part of a 300-acre nest patch.

pg. IV.7 - change paragraph v:

If there are no 300-acre nest patches that meet either the high-quality habitat definition or the Types A or B habitat definitions within a particular 5,000-acre block, the next highest quality 300-acre habitat patches should be identified...

pg. IV.7 - change paragraph d & e:

(de) ~~Nesting areas~~ The 300 acre nest patches shall be deferred from harvest until DNR can demonstrate the successful application of silvicultural techniques to create functional nesting habitat in managed stands...

pg. IV.8 - replace paragraph (c) with:

(c) DNR will submit proposed exceptions to the Service. If the Service does not agree with the proposal, a multi-agency science team, including staff specialists from DNR, the Service, and any third party scientist the Service deems appropriate, shall be convened to resolve any outstanding issues.

pg. IV.9 - change second paragraph:

~~If a spotted owl nest site is known to occur in a planned harvest area, seasonal harvest restrictions times to avoid the breeding season shall be observed within a 0.7 mile radius of the nest site. In WAUs that are above the habitat target, DNR will avoid harvest of habitat within 0.7 mile of known nest sites during the breeding season. DNR will use any updated information on nest site locations provided by the Service.~~

pg. IV.9 - change the fifth paragraph:

~~When harvesting spotted owl habitat outside of designated NRF areas, DNR will consider recommendations of the USFWS for scheduling potential take of spotted owl site centers during the first decade. This will be done in order to retain sites that may have a valuable short-term contribution to the population. Otherwise, the provisions of the spotted owl strategy do not place any special conditions upon forest stands in WAUS that are not designated to provide habitat for the spotted owl...~~

pg. IV.9 - change the paragraph under heading "Management in WAUs Not Designated to Provide Habitat for Spotted Owls":

~~...If a spotted owl nest site is discovered during timber sale planning in the stand not designated to provide spotted owl habitat, seasonal harvest restrictions timed to avoid the breeding season shall be observed with a 0.7 mile radius of 70 acre core surrounding the nest site.~~

pg. IV.9 - change the first paragraph under "Salvage Operations and Activities Related to Forest Health":

DNR's HCP conservation strategies include commitments to develop and maintain wildlife habitat (in this case, NRF habitat and dispersal habitat for the northern spotted owl) over time in designated amounts and areas. In general, such conservation commitments made in the HCP will take priority over other DNR management considerations. However, these conservation commitments may, in some cases, be inconsistent with activities DNR must consider under state statutes pertaining to salvage (RCW 79.01.795) and forest health (RCW 76.06.040) ~~may require DNR to make~~

decisions that may not be consistent with the habitat conservation commitments made in the HCP.

pg. IV.9 - change the second paragraph under “Salvage Operations and Activities Related to Forest Health”:

For example, salvage operations might be considered by the DNR for reasons such as windthrow, fire, disease, or insect infestation. Activities related to forest health might include risk reduction through underburning, thinning, or harvest to stop spread of disease or insect infestation.

pg. IV. 9 - change the third paragraph under “Salvage Operations and Activities Related to Forest Health”:

When DNR determines that consideration of activities inconsistent with the commitments made in the HCP is necessary, consultation such potential exists, discussions shall be held with the U.S. Fish and Wildlife Service. DNR shall provide the U.S. Fish and Wildlife Service with complete descriptions of the situation making consideration of such activities necessary, the activities under consideration, and the expected impacts of the activities to the situation and to the HCP conservation strategies. If the U.S. Fish and Wildlife Service determines it is determined that such activities would adversely impact the HCP conservation strategies, DNR and the U.S. Fish and Wildlife Service shall identify additional mitigation that would allow the necessary activities to go forward.

pg. IV.9 - add a fourth paragraph under “Salvage Operations and Activities Related to Forest Health”:

In conducting salvage activities, DNR shall, to the extent practicable:

- minimize the harvest of live trees to those necessary to access and complete the salvage activity, and
- maximize and clump the retention of large, safe, standing trees to provide future snags; and consider opportunities to retain concentration of snags and/or coarse woody debris which may benefit species such as black-backed and three-toed woodpeckers.

pg. IV.10 - add to end of the paragraph with heading “Support of Federal Reserves”:

Proposals for such changes would be developed by DNR and submitted to the Services. A multi-agency science team may be convened to resolve questions regarding the biological basis of the proposal.

pg. IV.10 - change the first bullet of the fourth paragraph:

- At least 31 trees per acre are greater than or equal to 21 inches dbh with at least 15 trees, of those 31 trees, per acre greater than or equal to 31 inches dbh.

pg. IV.12 - add to end of the paragraph with heading “Nesting Habitat”:

Proposals for such changes would be developed by DNR and submitted to the Services. A multi-agency science team may be convened to resolve questions regarding the biological basis of the proposal.

pg. IV.15 - change the fourth paragraph:

The recommendation for arranging nesting habitat in a 300 acre nest patch within a larger 500 acre patch of suitable habitat is based on studies that demonstrate increasing probability of spotted owl occupancy with increasing amount of habitat close to site centers and studies that show concentrated use of habitat within 0.7 mile of site centers. In a study of 125 61 spotted owl sites on the east slope of the Cascades, Irwin and Martin (1992) demonstrated that the probability of occupancy increase with the amount of suitable habitat in a 500-acre circle. Their study showed that probability of occupancy exceeded 90 percent where there was more than 300 acres of habitat within a 0.5-mile-radius circle. found that spotted owl sites that were occupied either one or two years of a two-year survey had an average of 252 acres (s.d. = 20) of suitable habitat within a 0.5 mile circle in managed stands and 316 acres (s.d. = 20) in a 0.5 mile circle in unmanaged stands. There was a strong statistical relationship between the amount of habitat found at sites with 0, 1, or 2 years of occupancy at 0.5, 1.0, 1.5, and 2.0 miles from the site center with the strongest relationship occurring at 0.5 mile. Data on the amount of habitat found within 0.5 mile of occupied sites was used in a logistic regression analysis to predict occupancy. Their analysis predicted a 90 percent chance of pair site occupancy when there were 300 acres of suitable habitat within 0.5 mile of a site center. This study provided predictive abilities and did not establish minimum amounts of habitat needed by owls. As stated above, this study was conducted on the east side of the Cascade Crest where owl responses to habitat quality and quantity are different from forests on the west side of the Cascade Crest. DNR believes that patches of this size, in combination with surrounding sub-mature forest will provide the necessary habitat to support nesting owls in proximity to federal lands.

pg. IV.16 - change the first paragraph:

...Based on this information, it is reasonable to arrange high-quality nesting habitat in contiguous 500-acre patches (300 acres of high-quality nesting habitat and 200 acres of at least sub-mature habitat) within a 0.7-mile-radius circle.

Conservation Strategy for the Three East-side Planning Units

pg. IV.20 - change first paragraph after the bullets:

If a spotted owl nest site is known to occur in a planned harvest area, season harvest restrictions timed for the breeding season shall be observed within 0.7-mile-radius of the nest site. In WAUs that are above the habitat target, DNR will avoid harvest of habitat within 0.7 mile of known nest sites during the breeding season. DNR will consider any updated information on nest site locations provided by the Service.

pg. IV.21 - first paragraph:

When harvesting spotted owl habitat outside of designated NRF areas, DNR will consider recommendations of the USFWS for scheduling potential take of spotted owl site centers during the first decade. This will be done in order to retain sites that may have a valuable short-term contribution to the population. Otherwise, The provisions of the spotted owl strategy do not place any special conditions upon forest stands in WAUs that are not

designated to provide habitat for the spotted owl. season shall be observed within a 0.7 mile radius of 70 acre core surrounding the nest site.

pg. IV.21 - delete all three paragraphs under “Salvage Operations and Activities Related to Forest Health” and replace with:

DNR’s HCP conservation strategies include commitments to develop and maintain wildlife habitat (in this case, NRF habitat and dispersal habitat for the northern spotted owl) over time in designated amounts and areas. In general, such conservation commitments made in the HCP will take priority over other DNR management considerations. However, these conservation commitments may, in some cases, be inconsistent with activities DNR must consider under state statutes pertaining to salvage (RCW 79.01.795) and forest health (RCW 76.06.040).

For example, salvage operations might be considered by DNR for reasons such as windthrow, fire, disease, or insect infestation. Activities related to forest health might include risk reduction through underburning, thinning, or harvest to stop spread of disease or insect infestation.

When DNR determines that such potential exists, discussions shall be held with the U.S. Fish and Wildlife Service. If it is determined that such activities would adversely impact the HCP conservation strategies, DNR and the U.S. Fish and Wildlife Service shall identify additional mitigation that would allow the necessary activities to go forward.

In conducting salvage activities, DNR shall, to the extent practicable:

- 1 minimize the harvest of live trees to those necessary to access and complete the salvage activity, and
- 1 maximize and clump the retention of large, safe, standing trees to provide future snags.

Rationale for the Spotted Owl Conservation Objective and Strategies	No change
Current Habitat and Projected Habitat Growth in Nesting, Roosting, and Foraging and Dispersal Management Areas	No change
Potential Benefits and Impacts to Spotted Owls	No change
B. Minimization and Mitigation for the Marbled Murrelet in the Five West-side and the Olympic Experimental State Forest Planning Units	No change

Conservation Objective

pg. IV.39 - change the second paragraph:

While the amount of scientific information that is available for this species has increased dramatically in recent years, it is still extremely limited. Additionally, no recovery plan and no designation of critical habitat for this species have been adopted by the federal government, although a draft proposals for both have been recently released. A final rule for critical habitat has been published. (See the discussion of these draft proposals in Chapter II.)

Interim Conservation Strategy

pg. IV.40 - change Step 3:

Following completion of the habitat relationship study in each planning unit, marginal habitat types that would be expected to contain a maximum of 5 percent of the occupied sites on DNR-managed lands within each planning unit shall be identified and made available for harvest. However, no known occupied sites will be released; they shall all be protected.

pg. IV.40 - change Step 4:

In each planning unit, all acreage constituting the higher quality habitat types (i.e., those not identified as available for harvest under Step 3) shall be included in an inventory survey, using Pacific Seabird or other commonly accepted protocol approved by the USFWS if available, to locate occupied sites. Outside of Southwest Washington¹, surveyed, unoccupied habitat will be released for harvest if it is not within 0.5 mile of an occupied site and after harvest, at least 50 percent of the suitable marbled murrelet habitat on DNR-managed lands in the WAU would remain. Within Southwest Washington¹, surveyed, unoccupied habitat will not be released for harvest unless (a) the long-term plan (see Step 5 below) for the applicable planning units has been completed or, (b) at least 12 months have passed since the initiation of negotiations of the draft long-term plan without completion of those negotiations. ~~Surveyed unoccupied habitat will be available for harvest if such harvest adheres to all other provisions of the HCP, Forest Practices regulations, and policies of the Board of Natural Resources.~~

pg. IV. 40 - change Step 5:

After Steps 1-4 are completed for each planning unit, the information obtained during these and other research efforts shall be used to develop a long-term conservation plan for marbled murrelet habitat on DNR-managed HCP lands within that planning unit. The habitat relationship study, inventory survey, and development of the long-term plan will occur consecutively within each planning unit - i.e., there will be no time gaps between Steps 2, 3, and 4. Negotiation of the draft long-term conservation plan for a planning unit will commence with the Service within 12 months of completion of the inventory surveys for that planning unit. All decisions made in Steps 1-4 above shall be reviewed as part of this process. (For example, it may be that some of the marginal habitat or surveyed unoccupied habitat made available for harvest in Step 3 or Step 4 will be identified as important to protect in the long-term plan.) ~~These plans shall then be included in the HCP by amendment.~~ Once all individual planning unit plans are complete, a comprehensive review shall be conducted and modifications made if required. DNR will submit its proposal for long-term plans to the Service for approval. DNR may convene a multi-agency science team to resolve issues of disagreement over the proposal.

¹ For the purposes of the marbled murrelet strategy, Southwest Washington is defined as that portion of the Columbia Planning Unit west of Interstate 5 and that portion of the South Coast Planning Unit that is located south of Highway 8.

Habitat Definitions

pg. IV.42 - change first paragraph:

...Platforms are counted only in conifer trees and only if located within the live crown. When trained staff are counting platforms for the number per acre calculation, all platforms fitting this description should be included...

Possible Components of a Credible Long-term Conservation Strategy

pg. IV.44 - insert new paragraph prior to heading Potential Benefits and Impacted to Marbled Murrelets:

The long-term conservation plan developed by DNR would likely include information on the location of occupied sites, the distribution of habitat in each planning unit, current research results, landscape-level analysis and considerations, and the site-specific management plans developed by DNR. The long term plan would address such factors as developing habitat where gaps exist, developing or maintaining replacement habitat, and would protect the vast majority of occupied sites. This process should result in a comprehensive, detailed landscape-level plan that would help meet the recovery objectives of the USFWS, contribute to the conservation efforts of the President's Northwest Forest Plan, and make a significant contribution to maintaining and protecting marbled murrelet populations in western Washington over the life of the HCP.

Potential Benefits and Impacts to Marbled Murrelets

pg. IV.44 - add to the end of the first bullet:

There will likely be a small impact to the population from not including potential habitat on DNR-managed lands beyond 50 miles from marine waters.

C. Minimization and Mitigation for Other Federally Listed Species in All Planning Units

Oregon Silverspot Butterfly

pg. IV. 45 -new second paragraph under heading "Oregon Silverspot Butterfly":

In addition, DNR will not harvest timber, construct roads, or apply pesticides within 0.25 mile of an individual occurrence of an Oregon silverspot butterfly, documented by WDFW. In places where DNR believes that effective conservation can be provided in a more efficient way, DNR may present to the USFWS a site-specific management plan that provides adequate protection for the species or habitat occurring at that site. If the USFWS do not approve of the plan, then a multi-agency science team will be convened. The team will evaluate the plan and determine if it is adequate, and if it is not, recommend additional measures that should be taken to make it so.

Aleutian Canada Goose

No change

Bald Eagle

pg. IV.46 - add to the first paragraph:

...Under this HCP, all DNR forest management activities in the area covered by the HCP shall comply with state Forest Practices Rules and state wildlife regulations and shall be consistent with the policies set forth by the Board of Natural Resources. When developing a site management plan for bald eagle habitat pursuant to WAC 232-12-292 DNR will, where appropriate, consider perch/pilot trees and foraging areas associated with nesting sites, winter roost trees, and winter feeding concentration areas. In addition to protection of nesting trees and the immediate vicinity.

Peregrine Falcon

pg. IV.46 - change the last paragraph:

...In addition, in east- and west-side planning units and the Olympic Experimental State Forest, DNR shall restrict public access to DNR-managed lands within 0.5 mile of any peregrine falcon aerie, and DNR, U.S. Fish and Wildlife Service, and Washington Department of Fish and Wildlife shall keep the locations of aeries on DNR-managed lands confidential to the extent permitted by law where practicable:

- I review and, where necessary, manage public access to DNR-managed lands within 0.5 mile of a known peregrine falcon aerie,
- I conduct field review, by staff knowledgeable of peregrine biology and requirements, of all cliffs in excess of 150', and conduct surveys for peregrine falcon aeries at cliffs judged to have likely potential for use,
- I protect ledges on cliffs judged suitable for aeries,
- I retain trees along the base and top of cliffs judged suitable for aeries, especially perch trees along the top of cliffs, and
- I keep the location of peregrine falcon aeries on DNR-managed lands confidential to the extent permitted by law.

Gray Wolf

pg. IV. 47 - Insert new first paragraph under heading Gray Wolf:

The status of the gray wolf within the proposed HCP area is unknown. However, it is likely that even if absent now, wolves will emigrate and reside in this area during the Permit period. Biologically, the fate of the wolf is linked to that of its prey, which includes large herbivores such as elk and deer, and smaller mammals such as the snowshoe hare. No "recovery areas" have yet been designated for the gray wolf in the Washington Cascades. DNR will evaluate the amount of habitat for preferred wolf prey species and prioritize areas that have a higher likelihood of providing adequate habitat for the preferred prey species.

pg. IV.47 - change third paragraph:

Additional conservation of gray wolves and their habitat will be provided by the HCP riparian and spotted owl conservation strategies and by the following specific measures for managing potential gray wolf habitat on DNR managed lands in the area covered by the HCP. DNR believes that the combination of riparian and marbled murrelet strategies in western Washington, and the spotted owl strategy and improved road management plan in both western Washington and the east-side planning units will provide support to gray wolves. Additionally, DNR will attempt to avoid or minimize potential impacts to gray wolves by maintaining habitat in a condition that allows wolves and their important prey species to meet their essential biological needs by providing:

pg. IV.47 - add new first bullet:

- Den Site and Rendezvous Site Protection

pg. IV.47 - change second bullet:

- DNR, in consultation cooperation with the Washington Department of Fish and Wildlife or U.S. Fish and Wildlife Service, shall develop and implement practicable, economically reasonable, site-specific plans to limit human disturbance within the wolf habitat management area. If the USFWS does not approve of the plans, then a multi-agency science team will be convened. The team will evaluate the plans and determine if they are adequate, and if not, recommend additional measures that should be taken to make them adequate.

pg. IV.47 - add two additional bullets after last bullet:

- Provisions for Prey Habitat Conditions - Habitat management for wolves is primarily directed at habitat for its prey species (USFWS 1984). The most important prey species in the HCP area are deer and elk. The species use edges between cover (older forest) and forage habitats (stand initiation, shrub/sapling, and younger forest). The creation and maintenance of edge habitat through timber harvest activities will provide adequate habitat for wolf prey species.
- Road Management - DNR will attempt to provide more secure conditions for both prey species and wolves. Minimal contact with humans has been cited as the second most important biological necessity for wolf recovery (USFWS 1984). DNR has been involved in cooperative road closures with WDFW and the Forest Service to restrict vehicular activity to maintain or increase big game security and reduce hunting pressure. DNR will continue to participate in such cooperative activities. Ungulate fawning/calving and wintering areas are areas where wolves are most likely to occur. To the extent practicable, DNR will schedule forest management activities, including road construction and use, to occur at times of the year when wolves are least likely to be present.

Grizzly Bear

pg. IV.48 -insert after the first paragraph on Grizzly bears:

The federal and State wildlife agencies believe that grizzly bears occur, at least occasionally, within the North Cascades Grizzly Bear Recovery Zone. The Recovery Zone contains in excess of 6,000,000 acres including approximately 260,000 acres of DNR-managed forest lands. Less than 100,000 acres of the DNR-managed land, representing less than 2 percent of the Recovery Zone, is included within the area covered by the proposed HCP.

The DNR-managed lands covered by the HCP and within the Recovery Zone can be described as occurring in four locations: Skagit Valley, Spada Lake, the west side of the Methow Valley, and a group of separate sections between Wenatchee and Lake Chelan and surrounded by Forest Service land. In each of these areas, the DNR-managed lands lie on the periphery of the Recovery Zone between Federal ownership and areas of human occupancy and related activity. DNR believes the best use of lands it manages is to serve as a buffer between the federal ownership, where active recovery efforts are most likely to occur, and the areas of increased public use. DNR believes that this role will be sufficiently supported by the combination of other strategies contained within the HCP.

pg. IV.48 - change second Grizzly Bear paragraph:

~~Additional conservation of grizzly bears and their habitat will be provided by the HCP riparian and spotted owl conservation strategies and by the following specific measures for managing potential grizzly bear habitat on DNR managed lands in the area covered by the HCP. DNR believes that the combination of riparian and marbled murrelet strategies in western Washington, and the spotted owl strategy and improved road management plan in both western Washington and the east-side planning units will provide support to grizzly bears. In addition, DNR proposes to provide the following site-specific measures:~~

pg. IV.48 - change second bullet:

- I ~~DNR, in consultation cooperation with the Washington Department of Fish and Wildlife or U.S. Fish and Wildlife Service, shall develop and implement practicable, economically reasonable, site-specific plans to limit human disturbance in the grizzly bear habitat management area.~~

Columbian White-tailed Deer

No change

D. Riparian Conservation Strategy for the Five West-side Planning Units

Conservation Objectives

pg. IV.51 - add new fifth paragraph:

The Services are prioritizing watersheds for the conservation of salmon. DNR will consider the results of this prioritization when planning its participation in Watershed Analysis.

pg. IV.51 and IV.52 - change last paragraph on p. 51 and first paragraph on p. 52:
As described in Section € D of Chapter III titled Salmonids and the Riparian Ecosystem, salmonid habitat includes the entire riparian ecosystem, and therefore, conservation objective (1) requires maintaining or restoring the riparian ecosystem processes that determine salmonid habitat quality. Also, as described in Section € D of Chapter III, hydrological and geomorphological processes originating in upland areas may also affect salmonid habitat...

Conservation Components

pg. IV.52 - add to end of the fourth full paragraph:

A riparian buffer 100 feet wide shall be applied to both sides of Type 4 waters. Type 4 waters classified after January 1, 1992, are assumed to be correctly classified. Type 4 waters classified prior to January 1, 1992, must either have their classification verified in the field or be assumed to be Type 3 waters. In general it is currently standard practice for DNR staff to physically examine the classification of streams within a management unit when preparing the unit for a timber sale. If an area has already been classified post 1992 and prior to the effective date of this HCP, it is likely in a management activity that is probably sold and/or harvested. Therefore, for all practical purposes, stream typing will be examined or verified in the field whether they were typed before or after 1992.

pg. IV.52 - change sixth paragraph:

In the field, the width of the riparian buffer shall be measured as the slope horizontal distance from, and perpendicular to, the outer margin of the 100 year floodplain active channel margin. ~~For the purpose of mapping and accounting, the width of the riparian buffer will be reported as horizontal distance.~~

pg. IV.52 - delete entire last paragraph and replace with:

Average buffer widths are given in Table IV.7. as average horizontal distances measured outward from the outer margin of the 100-year floodplain on either side of the stream. The 100-year floodplain is the valley-bottom area adjoining the stream channel that is constructed by the stream under the present climatic regime and overflowed at times of very high discharge (i.e., flooding associated with storms of a 100-year recurrence interval; Dunne, T., and L.B. Leopold. 1987). One-hundred-year floodplains commonly are delineated by the Federal Emergency Management Agency (FEMA) on Flood Insurance Rate Maps (FIRM) for each county of the state. The 100-year floodplain includes meandering, braided (i.e., multiple channel braids), and avulsion channels, as well as side channels that transport water from one part of a mainstream channel to another. Avulsion channels are portions of mainstream and side channels that have been abandoned temporarily by lateral displacement of the channel network elsewhere on the floodplain but are expected to be reoccupied when the network migrates back across the valley bottom.

The 100-year floodplain, which often encompasses the channel-migration zone, frequently occupies a several-hundred-foot wide section of the valley bottom on low-gradient, alluvial river systems. On higher-gradient streams in moderate to steep terrain,

the 100-year floodplain typically coincides with the active channel margin or extends only a few feet beyond the active (e.g., the high-water mark). The active channel consists of the wetted area and bed or bank surfaces exposed during low flows, as well as portions of the valley bottom nearest the channel that are inundated during typical flood events (i.e. comparable to the two-year recurring flood). Active channel margins commonly are identified in the field by piles of accumulated flood debris, overbank sediment deposits, streamside vegetation altered or damaged by channel flows, bank scour, and the absence of aquatic biota (e.g., algae) normally found in slack-water channels. In the five west-side planning units and the OESF, DNR manages only a few hundred acres on 100-year floodplains of the major river systems. Most floodplain acreage is privately owned or federally managed. FEMA maps indicate that most 100-year floodplains are associated with Type 1 and 2 water. Collectively, Type 1 and 2 waters represent less than 5 percent of stream miles on DNR-managed lands. Hence, the impact to DNR management associated with using the 100-year floodplain as the inner margin of riparian management zones is relatively negligible.

pg. IV.54 - delete bullets (1) through (4) at top of page and add new paragraph:

If Type 4 and 5 waters without fish become fishbearing upon removal of obstructions, they will be reviewed for proper typing. Type 4 or 5 waters documented to contain fish that are proposed or candidates for federal listing or federal species of concern will be treated as Type 3 waters, if appropriate.

pg. IV.54 - change second paragraph:

All Type 5 waters that flow through an area with a high risk of mass wasting shall be protected as described in the subsection below... In addition, during this interim 10-year period, a research program shall be initiated to study the effects of forest management along Type 5 waters ~~on aquatic resources~~ located on stable slopes. At the end of the 10 years, a long-term conservation strategy for forest management along Type 5 waters shall be developed and incorporated into this HCP as part of the adaptive management component of this HCP.

pg. IV.54 - insert new paragraph prior to heading "Wind Buffers":

Type 5 waters classified after January 1, 1992 are assumed to be correctly classified. Type 5 waters classified prior to January 1, 1992, will either have their classification verified in the field or be assumed to be Type 3 waters.

pg. IV.54 - change subparagraph (1) at bottom of page:

(1) No timber harvest shall occur within the first 25 feet (~~slope~~ horizontal distance) from the outer margin of the 100 year floodplain.

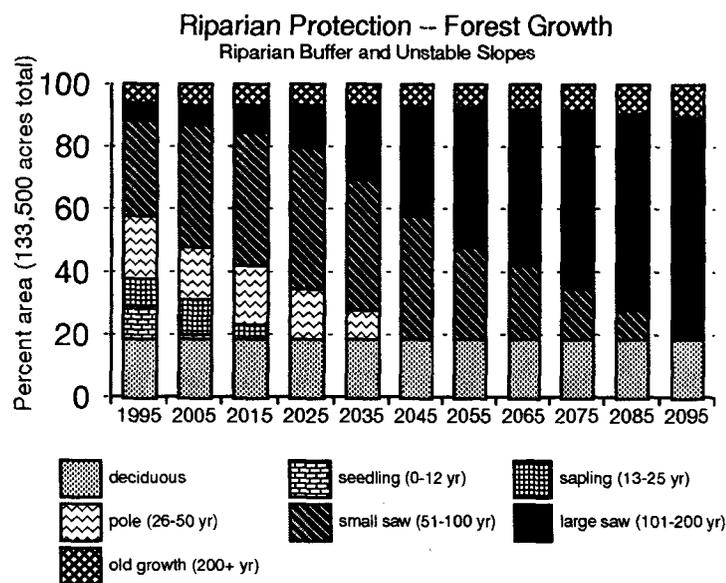
pg. IV.55 - change subparagraph (2) at top of page:

(2) The next 75 feet of the riparian buffer shall be a "minimal-harvest" area. Activities occurring between 25 and 100 feet (~~slope~~ horizontal distance) from the ~~active channel~~ 100 year floodplain must not appreciably reduce stream shading, the ability of the buffer to intercept sediment, or the capacity of the buffer to contribute detrital nutrients and large woody debris...

pg. IV.55 and 56 - delete last three paragraphs on pg. IV.55 and the first paragraph on pg. IV.56, and replace with:

To accommodate the greater flexibility afforded by managing riparian areas on a site-specific basis and the uncertainties surrounding the results of these activities conducted over time, an adaptive-management process will be used to specify management activities within riparian-management areas. Mechanisms used to achieve conservation objectives will vary as new information becomes available.

DNR believes that this strategy will lead, over time, to an age-class distribution within the riparian zones as depicted by the following graph:



Methods for making site-specific, forest-management decisions in the riparian management zones and wind buffers will be described in DNR's implementation guidelines. These guidelines will be developed by DNR and provided to the Services for their review prior to being implemented. These guidelines will, at a minimum:

- a. Describe in detail the conservation objectives. These objectives will include desired outcomes for such items as maintaining bank stability, water temperature, shade, and natural sedimentation rates; retention of large trees and snags necessary to support viable populations of riparian wildlife and recruit future snags, coarse woody debris (downed logs on land), and large woody debris (in-stream logs); and maintaining the natural capacity of these areas to provide

diversity including overstory composition, understory composition, detritus inputs, and natural pool frequencies.

- b. Define terminology, activities, and prescriptions. For example, single-tree removal may be defined in terms of distance between removed trees and years between entries and may vary by site. It is expected that additional considerations such as lean of the tree, distance from stream bank, size, soundness, and abundance of other mature conifer would be factors considered during a site-specific analysis. The implementation procedures will provide guidance on how to incorporate those types of considerations. Similarly, the implementation procedures may describe how considerations of the rooting zone may extend the 25-foot no-harvest area on a site-specific basis using canopy diameters or other such indicators. Terms such as restoration, single-tree removal, minimal harvest, low harvest, etc. would be defined for each component of the riparian management zones and wind buffers. Prescriptions for placement of yarding corridors and other such activities would also be included.
- c. Detail the monitoring methods to be used in the feedback process for adaptive management designed to ensure the riparian-management zones and wind buffers are adequately providing the desired characteristics (e.g., LWD, stream stability, water temperature, snag densities, etc.); and
- d. Describe the training to be provided to agency staff.

These procedures will be developed by DNR and presented to the Services within 12 months of the signing of the HCP documents. If the Services do not agree with the procedures developed by DNR, a multi-agency science team will be convened to review the sufficiency of the procedures. Timber harvesting conducted within the riparian management zones and wind buffers prior to agreement on the proposed agency procedures will be subject to the following limitations:

- a. Within the 25-foot "no harvest" zone, only commonly accepted restoration activities may occur; and
- b. Within the "minimal harvest zone," "low harvest zone," and "wind buffer," partial harvests may occur that remove no more than 10% of the conifer volume and/or 20% of the hardwood volume per rotation.

However, if 3 months have passed since the Services have received procedures developed by DNR and the agencies have been unable to reach agreement on their sufficiency, DNR may increase timber harvest within the riparian management zones and wind buffers with the following limits:

- a. Within the 25-foot "no harvest" zone, only commonly accepted restoration activities may occur;

-
- b. Within the "minimal harvest zone," single tree or partial harvests may occur that remove up to 10% of the volume;
 - c. Within the "low harvest zone," partial harvests may occur that remove up to 25% of the volume; and,
 - d. Within the "wind buffer," partial harvests may occur that remove up to 50% of the volume.

pg. IV. 56 - change the second paragraph:

~~No harvest shall occur on hillslopes with a high risk of mass wasting.~~ Unstable hillslopes will be identified through field reconnaissance or identified with slope geomorphology models (e.g., Shaw and Johnson 1995) and verified through field reconnaissance with qualified staff... A method for delineating on a site-specific basis the portions of hillslopes with a high risk of mass wasting will be described in agency procedures to be developed for this HCP. Where slope stability models are less accurate (i.e., Southwest Washington), DNR will also rely on additional information, such as soil types databases.

pg. IV.56 - change the second bullet:

- I a site-specific assessment of alternatives to new road construction (e.g., yarding systems) and the use of such alternatives where they are economically reasonable practicable and consistent with conservation objectives;

pg. IV.56 - add the following to the end of the section on "Road Network Management":

Background

Impacts from roads have been indicated as important potential influences on many species of wildlife and fish and their habitats. For example, elk use closed roads as travel corridors (Ward 1976). Also, both elk and deer use of habitat increases with increasing distance from open roads (Lyon and Jensen 1980; Lyon 1979; Perry and Overly 1977).

Grizzly bears generally avoid roads and associated human disturbance, and the Grizzly Bear Recovery Plan recognizes road management as the single most important tool to manage and maintain suitable grizzly habitat (USDI 1993).

Wolf dens and rendezvous sites are often characterized by distance from human activity, and the Rocky Mountain Wolf Recovery Plan states, "Habitat for wolves is an adequate supply of vulnerable prey (ideally in an area with minimal opportunity for exploitation of wolves by humans)" (USDI 1987).

The WDFW Draft Bull Trout/Dolly Varden Management and Recovery Plan (1992) recommends closing roads permitting public access to spawning areas or access that facilitates poaching. Additional riparian impacts include increased sedimentation from road runoff and increased rates of slope failure caused by improperly constructed or poorly maintained roads (Murphy 1995.).

The effects that roads have on the environment are influenced by what happens during the six distinct phases of road development: planning, design, construction, use, maintenance, and abandonment.

The planning phase determines road location across a landscape and has the single most significant impact on road density and road net configuration. In general, road spacing is determined by an economic balance between environmentally sound road transportation costs and environmentally sound yarding costs. At the site level, road spacing is controlled by topography that controls landing locations which are ultimately connected by a road network. Unstable slopes, wetlands, sensitive habitat, and other environmental issues are best addressed at this early stage as the location of a road will likely change very little once the control points are established.

The design phase ensures that a road will be built from one control point to another with sufficient width, usable grades, proper alignment, use of non-erosive surfacing material, adequate water drainage features, and stable cut-and-fill slopes.

Compliance with construction standards ensures that the road is built to the design specifications and ensures that the construction techniques minimize the amount of sediment moving from the road prism. If not carefully controlled, the construction phase can represent a significant percentage of the life cycle contribution of road sediment.

Forest roads are designed to handle designed traffic at some level of normal operations (road use). Roads are not typically designed to handle excessive loads or high volume traffic during very wet weather or during the thawing cycle associated with cold weather. Uncontrolled traffic can generate the largest percentage of the life cycle contribution of road sediment.

Maintenance operations attempt to keep the road at the designed level of performance. Maintenance primarily deals with keeping drainage structures functional and keeping the running surface usable. Maintenance cannot solve problems associated with a bad location, improper design, poor construction, or misuse.

Abandonment is an alternative to maintenance when the cost of maintaining any road segment is greater than the benefits of keeping the road open and environmentally sound.

DNR's Current Road Management Strategy

Current direction for the DNR's road construction and maintenance program comes from Forest Practices regulations (Chapter 222-24 WAC) and the 1992 Forest Resource Plan.

The objectives of DNR's current road management program are to:

1. minimize further road related degradation of riparian, aquatic, and identified species habitat,
2. plan, design, construct, use, and maintain a road system that serves DNR's management needs, and
3. remove unnecessary road segments from the road net.

Planning. In general, DNR plans for high lead (800 foot optimum average yarding distance) yarding systems on land with slopes above 40 percent, and ground based systems (1000 foot average yarding distance) below that. This together with topography results in typical road densities between 0.5 to 6.0 miles per square mile.

Design. DNR's design specifications meet or exceed Forest Practices regulations and hydraulic code requirements. Current road design standards call for 100-year flood design levels for water crossing structures, abutments of bridges to be outside the ordinary high water mark of streams, 18 inch minimum cross drain culverts, 12 foot running surfaces with 12 percent adverse and 18 percent favorable grades, and 60 foot minimum curve radius. Backslopes are designed according to soil type and meet or exceed the recommended angles required by Forest Practices regulations. Most Regions require that all roads on land with slopes greater than 40 percent be full bench construction with endhaul of excavated material when slopes exceed 55 percent or when within 100 feet of Type 1, 2 or 3 waters and wetlands. DNR also has minimum requirements for rock hardness and soluble degradation to reduce the amount of surface erosion generated from traffic.

Construction. DNR's road construction specifications meet or exceed the Forest Practices minimums. DNR requires compaction of fills in 2-foot layers, prohibits any woody debris from being incorporated into the fills, and often requires that the subgrade surface be compacted and graded prior to surface application. DNR prohibits construction during inclement weather and generally restricts construction to the dryer summer months.

Road Use. DNR currently allows all-season use of roads except for log truck traffic which may be restricted during periods of freeze-thaw cycles. DNR occasionally closes roads in agreement with the Washington Department of Fish and Wildlife for the purpose of game management. DNR also has occasional road closures related to fire control.

Maintenance. DNR road maintenance specifications meet or exceed the Forest Practices minimums. Road maintenance activities focus on four main activities: Timber sales, forest management, fire control access, and recreation. All roads are maintained to meet Forest Practices environmental and forest road safety standards. Each type of road has a different driveability standard that is linked to the type of vehicle used for each activity.

Abandonment. When a road segment is determined to be too expensive to maintain, or is no longer needed, it is stabilized and abandoned. DNR is currently building more road per year than it is abandoning. While the number of miles of road per section is getting lower, the need to keep roads open longer coupled with the need to access additional acreage means the road network keeps growing. The need to keep roads open longer is driven by new environmentally sensitive approaches to harvesting, such as partial cutting and staggered settings. These silvicultural techniques dictate the need for multiple entries into a stand over the long term.