

Appendix O

Data Updates

To develop the marbled murrelet long-term conservation strategy, the Washington State Department of Natural Resources (DNR) was interested in using information that is as accurate and up-to-date as possible. For that reason, DNR made a number of updates to its databases and systems when preparing the Revised Draft Environmental Impact Statement (RDEIS). Some of these updates changed acreage totals presented in the 2016 draft EIS (DEIS). In the following appendix, DNR described the major data updates it completed for the RDEIS and how it changed acreage totals for long-term forest cover and marbled murrelet habitat.

Updates to the Large Data Overlay

The large data overlay is DNR's complex geographic information system (GIS) model comprised of hundreds of individual data sources describing DNR-managed lands. Examples of such data include forest inventory information, riparian and hydrology data, roads and trails, and other biological and physical information. For the RDEIS, DNR updated the large data overlay with recent forest inventory data. Other, more specific updates included the following:

- Old-growth forest (old growth) selection criteria
- P-stage transitions
- Recent and historic harvest activities
- Occupied sites and buffers
- Local knowledge deferral areas
- Areas recommended for conservation during the public comment period for the 2016 DEIS

■ Old Growth Selection Criteria

The 2016 DEIS reported that old growth protected under DNR's *Policy for Sustainable Forests* was included in long-term forest cover for each alternative. A re-analysis of the data, however, found that it was not included. This data update involved two tasks:

- Updating the large data overlay to include as old growth all “high and moderate” candidate old growth stands, which are stands that are not field-verified but likely meet the old growth selection criteria, including a minimum height of 140 feet.

- Altering long-term forest cover to include both the high and moderate candidate stands and field-verified old growth stands known to exist on DNR-managed lands within the analysis area.

This update added the following acres to long-term forest cover under each alternative:

- Alternative A: 1,600 acres
- Alternative B: 3,700 acres
- Alternative C: 1,000 acres
- Alternative D: 2,900 acres
- Alternative E: 1,000 acres
- Alternative F: 90 acres

Acres are not provided for Alternatives G and H because they were developed after the large data overlay was updated.

■ P-stage Transitions

DNR’s P-stage model is part of the large data overlay. DNR reviewed the computer code in the P-stage model and found that some P-stage transitions (the relative stand age at which forest stands transition from one P-stage category to another) were happening too early. Refer to Table O.1 for more information.

Table O.1. Relative Stand Age (years) as Reported in the 2016 DEIS Compared to the 2018 RDEIS Update

P-stage (value)	Western hemlock	Western hemlock	Douglas fir	Douglas fir
	2016 DEIS	2018 RDEIS	2016 DEIS	(2018 RDEIS)
0.25	70	70	110	120
0.36	80	90	180	190
0.47	100	110	210	220
0.62	120	130	240	250
0.89	200	210	NA	NA

The change in P-stage transition affects not only the current amount of habitat, but also the amount of high-quality habitat that develops by the end of the analysis period. Because forest stands are transitioning through P-stages more slowly, some stands do not reach the highest P-stage values before the analysis period ends.

■ Recent and Historic Harvest Activities

DNR updated the large data overlay to reflect all areas of recent and historic harvests. Because P-stage value was removed from these harvested areas, the total number of acres of habitat decreased:

- Acres of habitat with P-stage value of 0.25 **decreased** by 858 acres
- Acres of habitat with P-stage value of 0.36 **decreased** by 1,232 acres
- Acres of habitat with P-stage value of 0.47 **decreased** by 617 acres
- Acres of habitat with P-stage value of 0.62 **decreased** by 227 acres
- Acres of habitat with P-stage value of 0.89 **decreased** by 131 acres

The total **decrease** in habitat (all P-stage categories) was 3,065 acres.

■ Occupied Sites and Buffers

As management activities take place adjacent to occupied sites, the boundaries of these sites are reviewed and updated. In the North Puget HCP Planning Unit, DNR adjusted occupied sites per direction in a concurrence letter from National Marine Fisheries Services and U.S. Fish and Wildlife Service (the Federal Services) (refer to Appendix I). DNR also added a new, 39-acre occupied site in this planning unit. These changes are reflected in the updated large data overlay. For more information on occupied sites, refer to Appendix D.

Under the preferred alternative only, DNR also changed buffer requirements for the Olympic Experimental State Forest (OESF) HCP Planning Unit. Buffers on occupied sites larger than 200 acres increased from 164 to 328 feet (50 to 100 meters). Under the preferred alternative, the total number of acres of occupied sites and buffers increased from 88,000 to 92,000 acres, approximately 3,000 acres of which were due to the change in buffer size in the OESF.

■ Local Knowledge Deferral Area

For this data update, DNR updated its deferrals per operational feedback from each of the DNR regions in the analysis area. Updating deferrals decreased the number of acres in long-term forest cover by the following amounts:

- Alternative A: 9,800 acres
- Alternative B: 10,260 acres
- Alternative C: 8,830 acres
- Alternative D: 9,660 acres
- Alternative E: 8,780 acres
- Alternative F: 5,950 acres

This data update did not affect alternatives G and H, which were developed after the large data overlay was updated.

■ Areas Recommended for Conservation During the 2016 DEIS Public Comment Period

During the comment period for the 2016 DEIS, the Washington Department of Fish and Wildlife (WDFW) identified approximately 1,500 acres in the analysis area that they felt should have been identified as potential existing marbled murrelet habitat, or that were assigned a lower P-stage value than thought appropriate based on expert opinion. WDFW did not indicate actual P-stage values for these acres or how these acres would progress through P-stage categories during the analysis period.

DNR identified these acres in the large data overlay but included them in long-term forest cover under Alternative G *only*. DNR did not include these acres as mitigation under any of the alternatives.

■ Total Amount of Marbled Murrelet Habitat

The following changes to the large data overlay altered the total amount of marbled murrelet habitat identified in the analysis area:

- P-stage transition periods
- Recent and historic harvest activities
- Occupied sites and buffers
- Local knowledge deferral area

The following totals are in raw acres; these totals were not adjusted for edge or other factors.

All Marbled Murrelet Habitat:

- Current habitat **decreased** from 213,375 to 211,650 acres (decrease of 1,725 acres)
- Minimum habitat in decade five **decreased** from 316,600 to 267,400 (decrease of 88,859 acres)
- Current *adjusted* habitat **decreased** from 106,500 to 97,600 (decrease of 8,900 acres)
- Occupies sites in the analysis areas decreased from 61,085 acres to 59,330 acres (decrease of 1,755) due to refinements of existing occupied site boundaries follow field surveys and the addition of a new occupied site on DNR-managed lands.

■ Total Area of DNR-managed Lands

The total area of DNR-managed lands in the analysis area increased from 1,377,477 acres to 1,383,177 acres due to acquisitions and updated land survey data.

Disposed Lands to Which 1997 HCP Deed Restrictions Apply

Since 1997, DNR has disposed (sold, reconveyed, or transferred) some state trust lands within the marbled murrelet analysis area to other entities. Some acquiring entities, such as counties, public utilities, and WDFW, agreed to maintain the commitments of the 1997 HCP when managing these disposed lands. These commitments are transmitted to the new owner via deed restriction.

Approximately 14,000 acres of disposed lands in the analysis area retain 1997 HCP commitments (Figure O.1, Table O.2). These lands include P-stage habitat (Table O.3). Over half of these lands have murrelet habitat, including over 4,200 acres of high quality habitat.

DNR did not claim mitigation credit for these acres of habitat when calculating take and mitigation for the 2016 DEIS. Since then, DNR has decided to do so, as permitted by Section 17.0 of the 1997 HCP Implementation Agreement: *“if DNR sells or exchanges DNR-managed lands...and the acquiring entity commits in writing to the Services that the lands disposed by DNR will be managed in a manner which maintains the commitments of the HCP, DNR will continue to be given credit for such lands...”* DNR also will continue to include these lands in effectiveness monitoring.

When including these acres in the take and mitigation calculation, DNR discounted them for factors such as edges. The total number of adjusted acres added as mitigation was approximately 2,000. (Refer to Appendix H for more information on calculating mitigation.) These acres do not include disposed lands that became natural area preserves and natural resources conservation areas, because those areas already are included in the long-term conservation strategy as mitigation.

Figure O.1. Map of Disposed Lands in the Analysis Area That Retain 1997 HCP Commitments

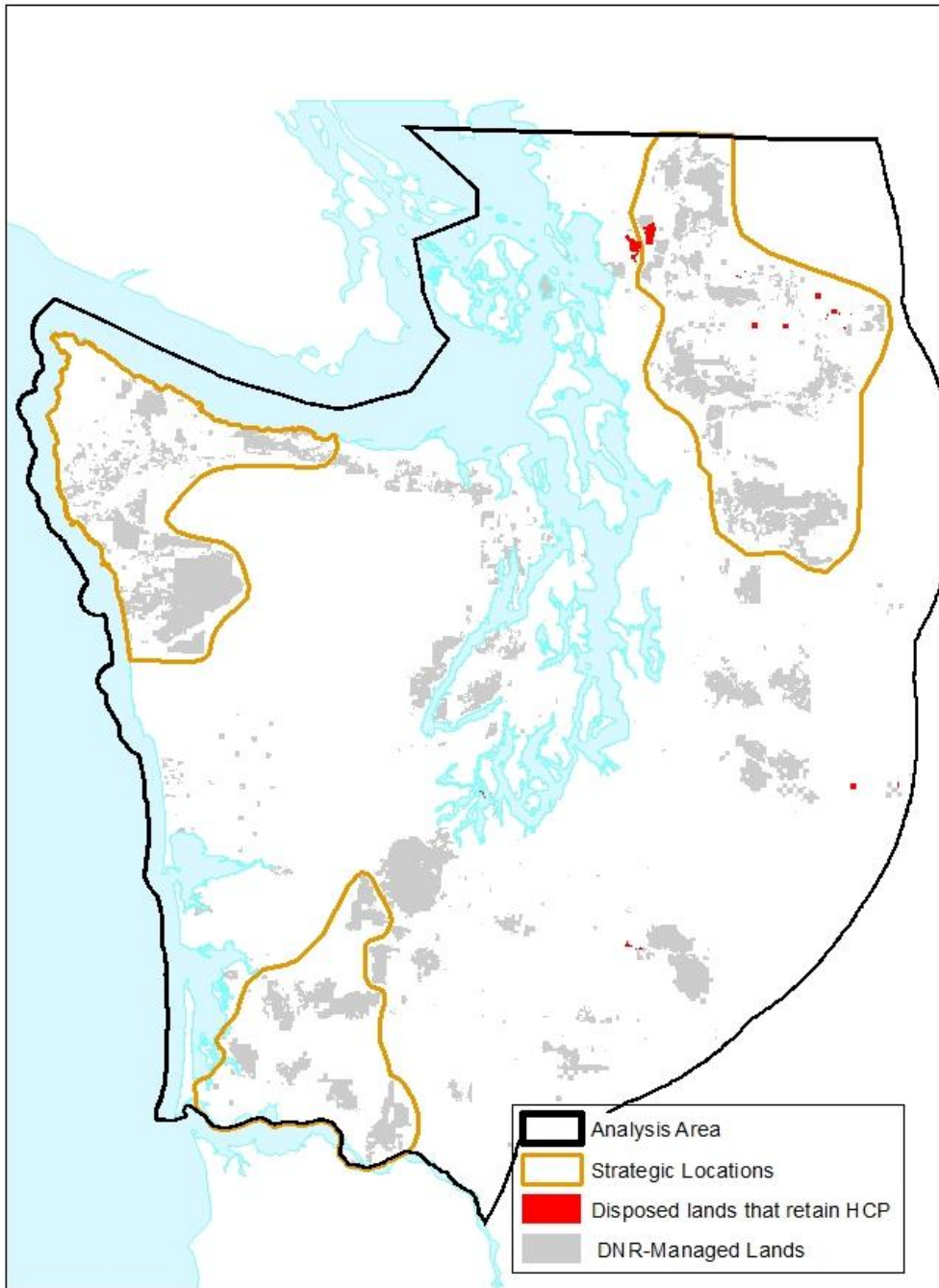


Table O.2. Current Managers of Disposed Lands That Retain HCP Protection

(Includes Both Forested and Non-Forested Lands, Only Forested Lands Contribute to Long-term Forest Cover)

Land Owner	Acres
Whatcom County	8,628
City of Seattle	1,711
City of Tacoma	1,710
WDFW	1,467
Squaxin Tribe	278
Other (mostly non-forested)	36
Total	13,830

Table O.3. Current and Decade 5 P-stage on Disposed Lands That Retain HCP Protection

P-stage	Current P-stage	Decade 5 P-stage
0	10,700	9,156
0.25	1,069	1,713
0.36	602	378
0.47	155	511
0.62	789	1,557
0.89	86	86
1	429	429
Total	13,830	13,830