Marbled Murrelet Long-Term Conservation Strategy

A report to the Board of Natural Resources

presented by  Kyle Blum    July 2016
Outline

1. Correction from last meeting

2. Additional Alternative Summaries
As manager of state trust lands, DNR has legal fiduciary responsibilities under the State Constitution to:

• Generate revenue and other benefits for each trust, in perpetuity
• Preserve the corpus of the trust
• Exercise reasonable care and skill
• Act prudently to reduce the risk of loss for the trusts
• Maintain undivided loyalty to beneficiaries
• Act impartially with respect to current and future beneficiaries
Evaluation Criteria

1. To the maximum extent practicable, minimize and mitigate the impacts of take.

2. Not appreciably reduce the likelihood of the survival and recovery of the species in the wild.

3. Make a significant contribution to maintaining and protecting marbled murrelet populations in western Washington over the life of the HCP.
Correction

Calculation error in July BNR presentation

Percentage of LTFC currently in a soft edge condition was incorrectly set at 36.1%.

Correct value = 26%

*This value influences the edge habitat discount, and therefore adjusted P-stage acres
### Correction

**Change in adjusted take and mitigation acres:**

<table>
<thead>
<tr>
<th></th>
<th>Old Take</th>
<th>New Take</th>
<th>Take Difference</th>
<th>Old Mitigation</th>
<th>New Mitigation</th>
<th>Mitigation Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>13,841</td>
<td>13,530</td>
<td>-311</td>
<td>16,094</td>
<td>16,405</td>
<td>311</td>
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<tr>
<td>B</td>
<td>18,084</td>
<td>17,833</td>
<td>-251</td>
<td>11,998</td>
<td>12,249</td>
<td>251</td>
</tr>
<tr>
<td>C</td>
<td>11,638</td>
<td>11,351</td>
<td>-287</td>
<td>16,582</td>
<td>16,869</td>
<td>287</td>
</tr>
<tr>
<td>D</td>
<td>15,600</td>
<td>15,335</td>
<td>-265</td>
<td>15,754</td>
<td>16,019</td>
<td>265</td>
</tr>
<tr>
<td>E</td>
<td>11,303</td>
<td>11,016</td>
<td>-287</td>
<td>17,099</td>
<td>17,387</td>
<td>288</td>
</tr>
<tr>
<td>F</td>
<td>10,126</td>
<td>9,785</td>
<td>-341</td>
<td>25,292</td>
<td>25,633</td>
<td>341</td>
</tr>
</tbody>
</table>
Alternative Outputs – Not Corrected

Take and Mitigation by Alternative

- Alternative F
- Alternative E
- Alternative D
- Alternative C
- Alternative B
- Alternative A

Mitigation | Take

Draft
Alternative Outputs – After Correction

Take and Mitigation by Alternative

- Alternative A
- Alternative B
- Alternative C
- Alternative D
- Alternative E
- Alternative F

[Bar chart showing mitigation and take for each alternative]
## Alternative F Occupied Site Buffers

### Alternative Profiles

#### Approximate Acres of Marbled Murrelet-Specific Conservation

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupied sites</td>
<td>8,000</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Occupied site buffers</td>
<td>12,000</td>
<td>13,000</td>
<td>13,000</td>
<td>13,000</td>
<td>13,000</td>
<td><strong>16,000</strong></td>
</tr>
<tr>
<td>Habitat identified under interim strategy</td>
<td>17,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marbled murrelet management areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>78,000</td>
</tr>
<tr>
<td>Emphasis areas</td>
<td></td>
<td></td>
<td>14,000</td>
<td>14,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special habitat areas</td>
<td></td>
<td></td>
<td>9,000</td>
<td>28,000</td>
<td>13,000</td>
<td></td>
</tr>
<tr>
<td>High quality P-stage habitat ((\geq .47) patches)</td>
<td></td>
<td></td>
<td>7,000</td>
<td>7,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing Northern Spotted Owl Habitat- low quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>47,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>37,000</strong></td>
<td><strong>10,000</strong></td>
<td><strong>53,000</strong></td>
<td><strong>51,000</strong></td>
<td><strong>57,000</strong></td>
<td><strong>151,000</strong></td>
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</tbody>
</table>

*Note there is a lot of overlap of this habitat with existing conservation. Alternative A has approximately 114,000 acres selected for ‘SUITABLE’, ‘RECLASS’, ‘POTEN’, and ‘NEWLYID’. Of that acreage, approximately 98k overlaps with existing conservation, occupied sites, or buffers on those sites.*
Additional Alternative Summaries

Raw Habitat Loss from Harvest in Decade 0

<table>
<thead>
<tr>
<th>Acres of Habitat Outside of LTFC</th>
<th>Alt A</th>
<th>Alt B</th>
<th>Alt C</th>
<th>Alt D</th>
<th>Alt E</th>
<th>Alt F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Quality</td>
<td>40,000</td>
<td>40,000</td>
<td>40,000</td>
<td>40,000</td>
<td>40,000</td>
<td>40,000</td>
</tr>
<tr>
<td>High Quality</td>
<td>20,000</td>
<td>20,000</td>
<td>20,000</td>
<td>20,000</td>
<td>20,000</td>
<td>20,000</td>
</tr>
</tbody>
</table>
Raw Habitat Growth over Planning Period*

Adjusted Habitat Growth over Planning Period, Stringers Excluded

Acres of Habitat in LTFC

- Alt A
- Alt B
- Alt C
- Alt D
- Alt E
- Alt F

Starting Habitat
Ending Habitat
Increases in Habitat Quality Over Planning Period

<table>
<thead>
<tr>
<th></th>
<th>A0</th>
<th>A5</th>
<th>B0</th>
<th>B5</th>
<th>C0</th>
<th>C5</th>
<th>D0</th>
<th>D5</th>
<th>E0</th>
<th>E5</th>
<th>F0</th>
<th>F5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres of Habitat</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Decade 0 and Decade 5 by Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Habitat</td>
</tr>
<tr>
<td>Low Quality (P-stage = 0.25 – 0.36)</td>
</tr>
<tr>
<td>High Quality (P-state ≥ 0.47)</td>
</tr>
</tbody>
</table>
Estimated Change in LTFC Acres from Alternative A (no-action)

Acres

OESF
Straits
North Puget
South Puget and Yakima
Columbia
South Coast

-5,000
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000

B
C
D
E
F
Modeling the Effects of DNR Forest Management Alternatives on Marbled Murrelets in Washington: A Population Viability Analysis Approach

Zach Peery and Gavin Jones
Department of Forest and Wildlife Ecology
University of Wisconsin-Madison
Risk Analysis - WA

Alternative A

Alternative B

Alternative C

Alternative D

Alternative E

Baseline

Alternative means

Female population size (N)

Year of simulation
Enhancement Analysis - WA
Enhancement Analysis - DNR

Alternative A

Alternative B

Alternative C

Alternative D

Alternative E

Alternative F

Baseline

Alternative means

Female population size (N)

Year of simulation

1 10 20 30 40 50