





# Marbled Murrelet Long-Term Conservation Strategy

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Andrew Hayes  
October 1, 2019



# September Review

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- The Board needs to decide on the Marbled Murrelet Long-Term Conservation Strategy

- DNR needs to comply with the ESA and the Trust Mandate

- Tools have been developed to help you make the decision



# Agenda for Today

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- **Development of the Environmental Impact Statement (EIS)**
- Overview of the Final EIS
- The Amendment to the 1997 HCP



# Recognition of DNR\USFWS staff

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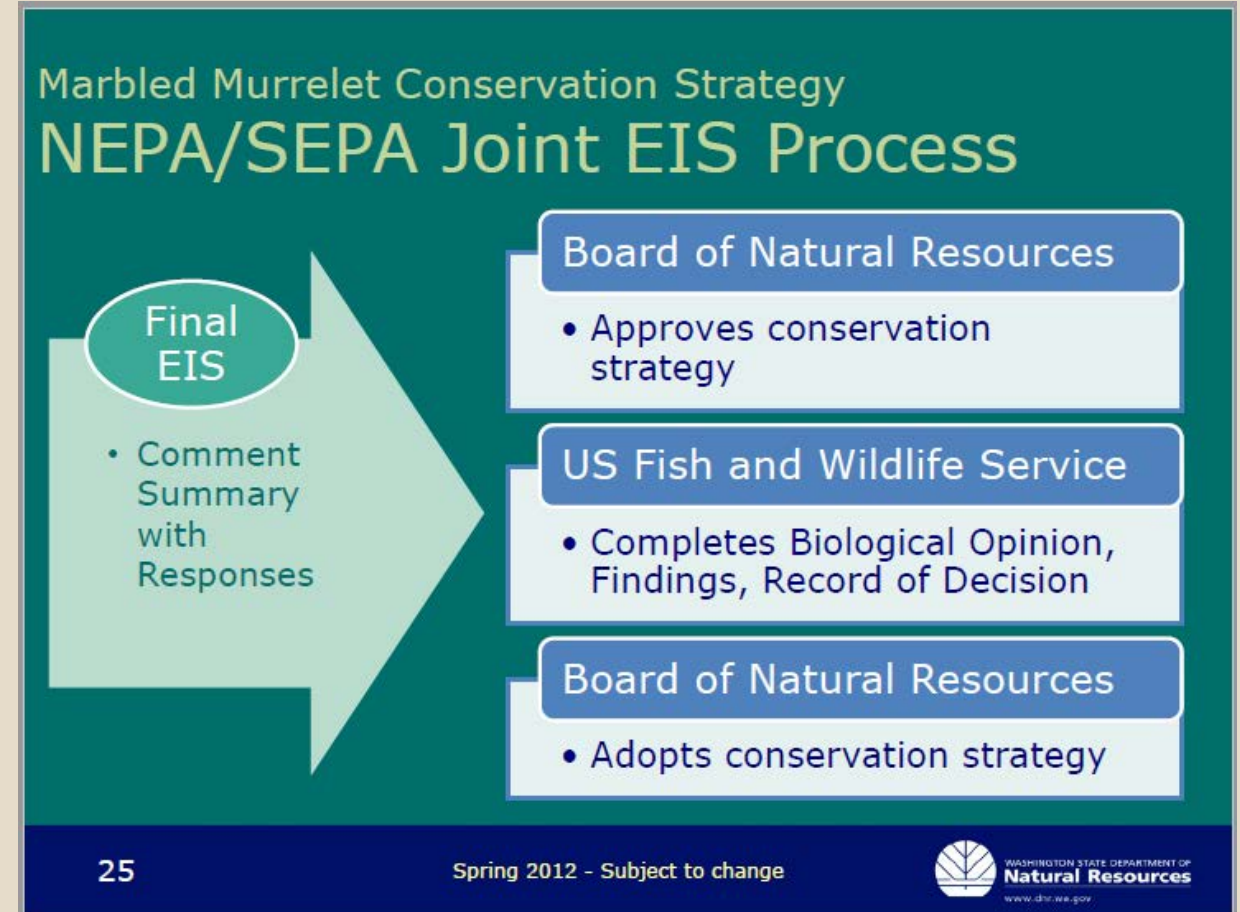
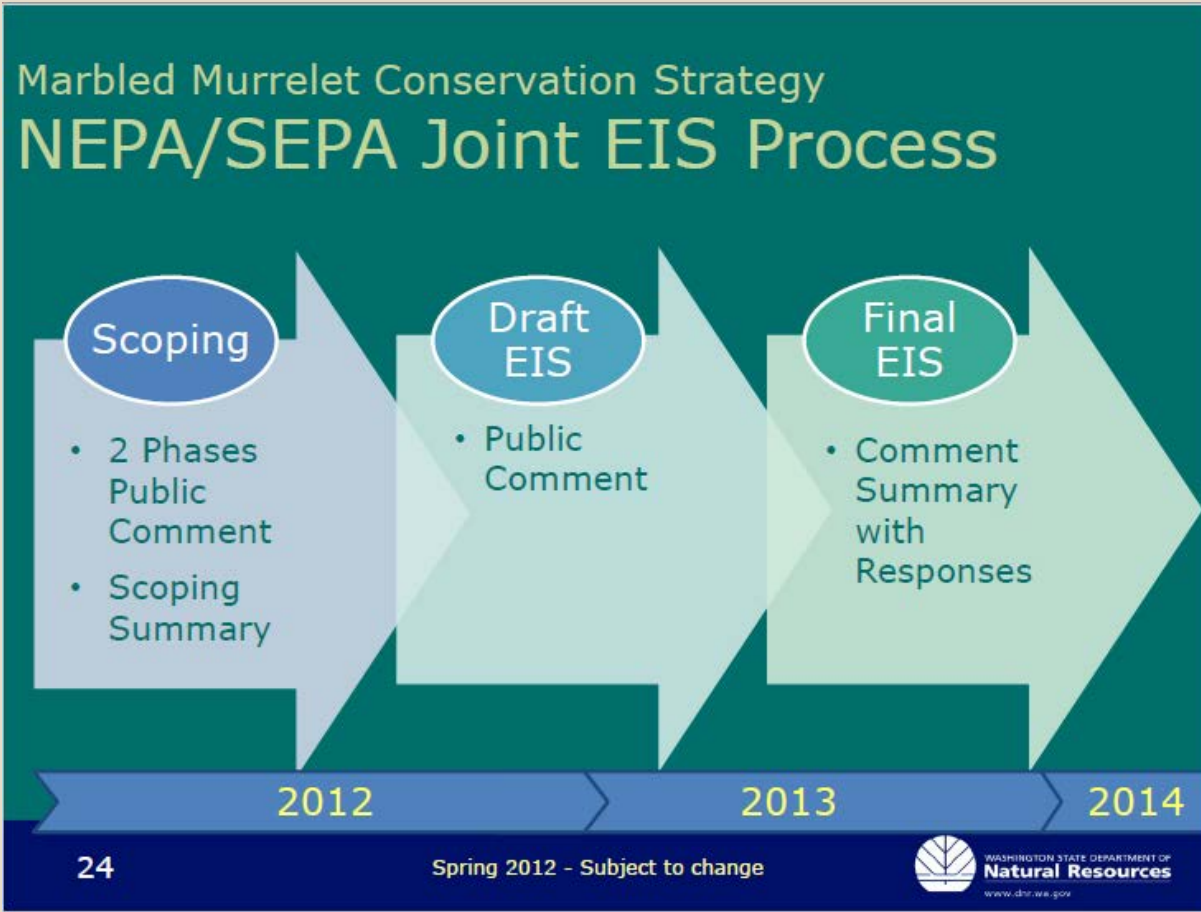
Allen Estep (DNR)	Jeff Ricklefs (DNR)	Patricia O'Brien (DNR)
Andrew Hayes (DNR)	Jennifer Davis (DNR)	Paul Bakke (DNR)
Candace Montoya (DNR)	John Gamon (DNR)	Peter Harrison (DNR)
Casey Hanell (DNR)	John Nuss (DNR)	Rebecca Niggemann (DNR)
Cathy Chauvin (DNR)	Josh Halofsky (DNR)	Rochelle Goss (DNR)
Cyndi Comfort (DNR)	Justin Schmal (DNR)	Ryan McReynolds (DNR)
Danielle Escene (DNR)	Kate Freund (USFWS)	Sara Palmer (DNR)
Darin Cramer (DNR)	Katherine Fitzgerald (USFWS)	Scott Horton (DNR)
Dave Dietzman (DNR)	Kirk Davis (DNR)	Scott McLeod (DNR)
David Bergvall (DNR)	Kristen Ohlson-Kiehn (DNR)	Shirley Burgdorf (DNR)
Emily Teachout (USFWS)	Kyle Blum (DNR)	Steve Desimone (WDFW/USFWS)
Erin Carver (USFWS)	Mark Ostwald (USFWS)	Thomas Laxton (DNR)
Heidi Tate (DNR)	Marshall Udo (DNR)	Tim Romanski (USFWS)
Janet Ballew (DNR)	Martin Acker (USFWS)	Vince Harke (USFWS)
Jeff Bernstein (USFWS)	Mike Buffo (DNR)	Weikko Jaross (DNR)

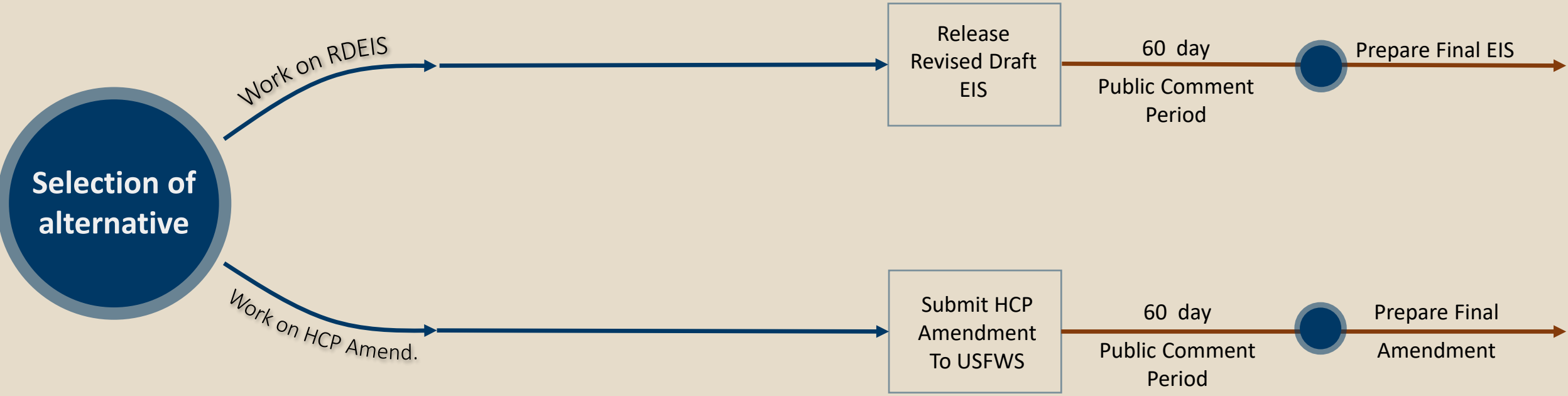
# Timeline

- September 2018 – Released the MMLTCS Revised Draft EIS
- September 2019 – Released the MMLTCS Final EIS
- October 2019 – Release the SHL Final EIS
- November 2019 – USFWS Approvals
- December 2019 – BNR Adoption

Marbled Murrelet Long-Term Conservation Strategy  
Sustainable Harvest Level

## From Spring 2012 Scoping Presentation





*From May 2018 BNR Presentation*





# Next Steps



March      April      May      June      July      August      September      October      November      December

DNR & USFWS: Prepare RDEIS comment responses

DNR & USFWS: Prepare Final EIS

DNR: Finalize HCP Amendment

USFWS: Issuance of  
Incidental Take Permit

- USFWS:
- ESA Section 10 Findings
  - NEPA Record of Decision
    - Biological Opinion

BNR: Board  
Resolution

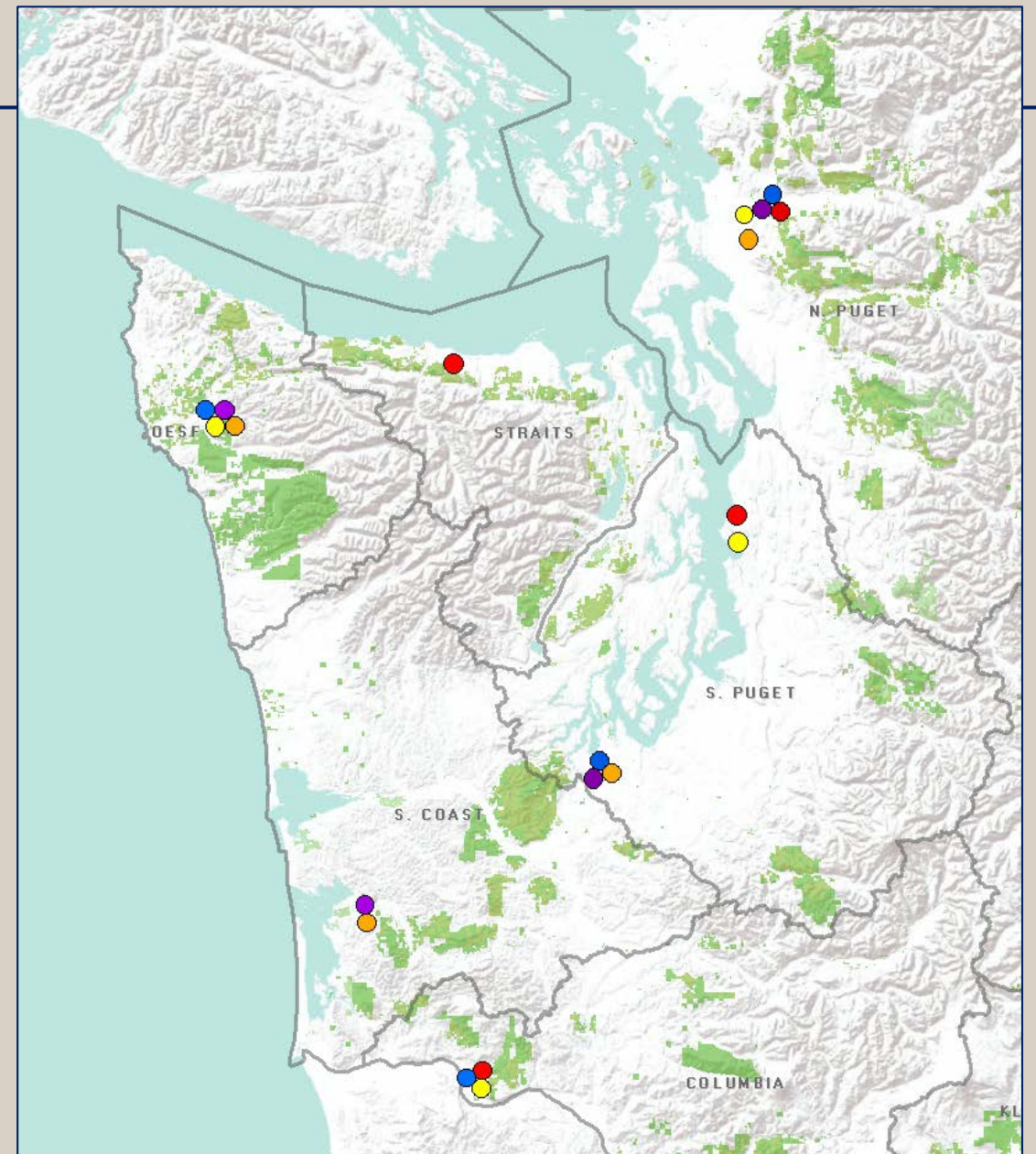
Implementation

***From March 2019 BNR Presentation***



# Public Process

	Date	Meeting	# of meetings	# of comment letters
●	2006	Early Scoping	4	10
●	2012	Scoping Phase 1	4	2,040
●	2013	Scoping Phase 2	4	1,976
●	2016	DEIS	4	>5,000
●	2018	RDEIS	4	>4,300



# Need



U.S. Fish & Wildlife Service

Need to fulfill ESA legal obligations in response to DNR's request to amend its incidental take permit



WASHINGTON STATE DEPARTMENT OF  
**NATURAL RESOURCES**

Long-term certainty for timber harvest consistent with commitments in the 1997 HCP and DNR's fiduciary responsibility to trusts



# Purpose and Objectives



- Ensure Issuance Criteria are met
- Ensure ITP and implementation achieve long-term species and ecosystem conservation at ecologically appropriate scales

- Develop a long-term conservation strategy for marbled murrelets
- Subject to DNR's fiduciary duty
- Must achieve 5 objectives:
  1. Trust Mandate
  2. Marbled Murrelet Habitat
  3. Active Management
  4. Operational Flexibility
  5. Implementation Certainty



# Incidental Take Permit Issuance Criteria

- A. The taking will be incidental
- B. Minimize and mitigate impacts of taking to maximum extent practicable**
- C. Adequate funding to implement murrelet strategy
- D. The taking will not appreciably reduce the survival and recovery of the species in the wild**
- E. Other measures the USFWS may require

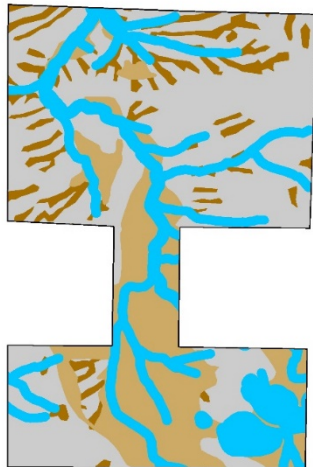


# Conservation Components

DNR-managed lands provide a mix of habitat in a working forest landscape, which include **existing conservation areas** as well as **murrelet specific conservation areas** to form what is known as long-term forest cover (LTFC).

## Components of LTFC

**Existing conservation areas:** riparian (blue), steep slopes (brown), owl habitat (light brown)



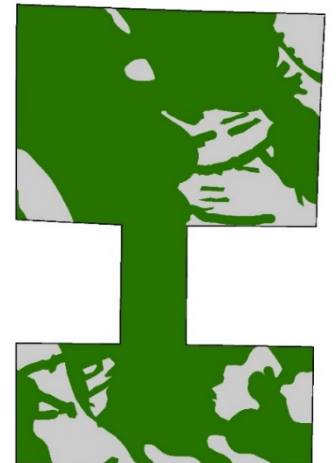
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**Marbled murrelet-specific conservation areas (orange) layered on top of existing conservation**



=

**Long-term forest cover (green)**



# Developing Alternatives - Conservation Components

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1. Occupied Sites
2. Occupied Site Buffers
3. High Quality Habitat
4. Special Habitat Areas
5. Emphasis Areas
6. Marbled Murrelet Management Areas



# OCCUPIED SITES

*\*Not existing in conservation*

Areas having shown signs of occupancy through surveys

**Benefits:** Provides interior, highest quality habitat

**Concerns:** Not strategically located



## Public Comments:

- Delineation methods
- Management restrictions

Alt A: 7,000 acres\*

Alts B - H: 9,000 acres\*



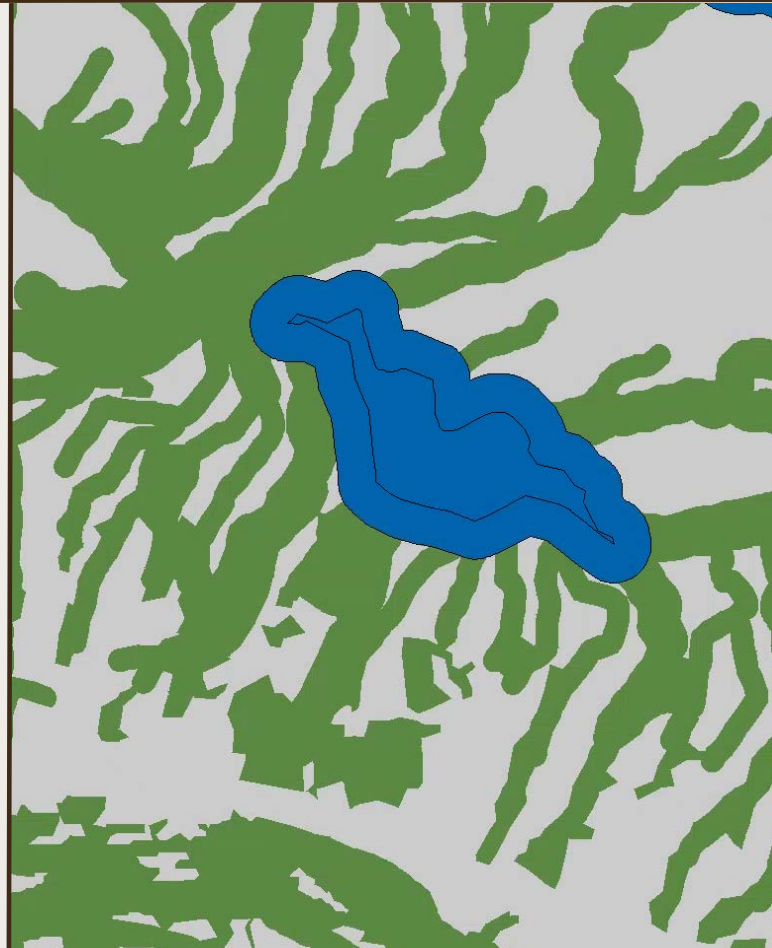


# OCCUPIED SITE BUFFERS

50 – 100 m buffers on occupied sites

**Benefits:** Insulates occupied sites and creates interior forest

**Concerns:** Adds conservation around dispersed locations



## Public Comments:

- Need larger buffers (150 m)

Alt A: 12,000 acres

Alt B: 0 acres

Alt C: 13,000 acres

Alt D: 13,000 acres

Alt E: 13,000 acres

Alt F: 16,000 acres

Alt G: 16,000 acres

Alt H: 16,000 acres

*Acres reported do not exist in conservation areas*



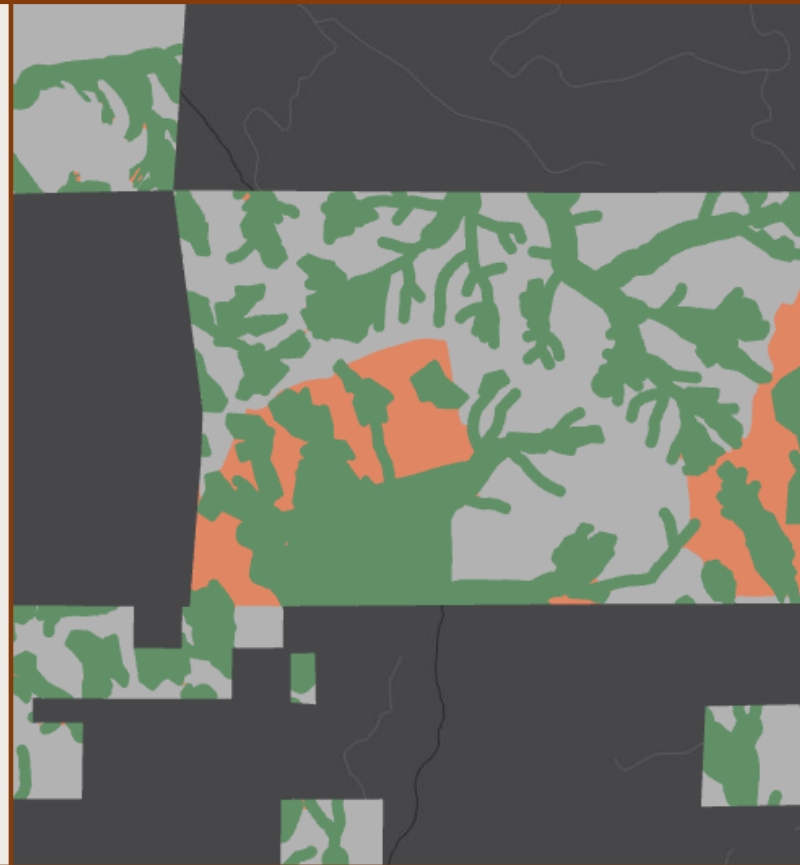
# HIGH QUALITY HABITAT

Existing stands with P-stage  $\geq 0.47$

*P-stage is a habitat quality metric developed by the 2008 Science Team report. Higher values signify higher quality habitat.*

**Benefits:** Conserves isolated patches of high quality habitat

**Concerns:** Small and scattered patches in managed landscape



## Public Comments:

- Concerns with any harvest
- Cutoff threshold

Alt C: 5,000 acres

Alt E: 5,000 acres

Alt G: 10,000 acres

ALT H: 5,000 acres (metered)



# SPECIAL HABITAT AREAS

Unmanaged areas around occupied sites and security forest

**Benefits:** Added security for occupied sites by reducing forest fragmentation

**Concerns:** Effective size unknown



## Public Comments:

- Conservation measures too restrictive
- Mapped lines not 'perfect'
- Questions about effectiveness

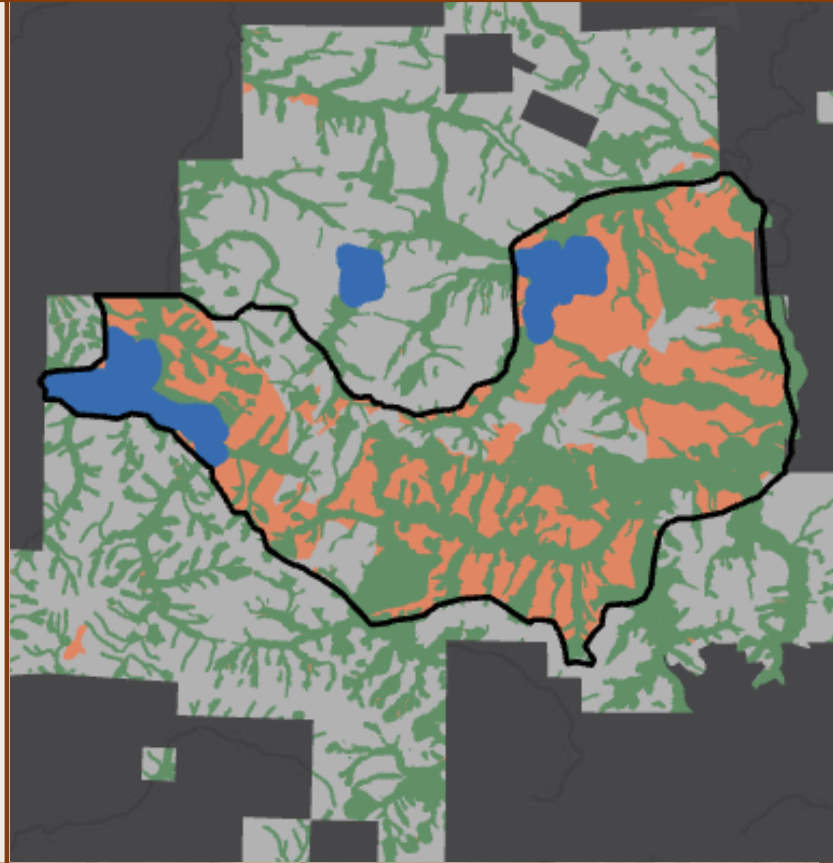
Alt C: 20 SHAs, 9,000 acres  
Alt D: 32 SHAs, 29,000 acres  
Alt E: 26 SHAs, 14,000 acres  
Alt G: 26 SHAs, 12,000 acres  
Alt H: 20 SHAs, 12,000 acres

# EMPHASIS AREAS

Larger areas with limited management activities permitted

**Benefits:** Contains strategic current and future P-stage habitat

**Concerns:** Active management occurs within conservation area



## Public Comments:

- Confusion around what is allowed
- Questions about effectiveness

Alt C: 7 EAs, 14,000 acres

Alt E: 7 EAs, 14,000 acres

Alt G: 7 EAs, 15,000 acres

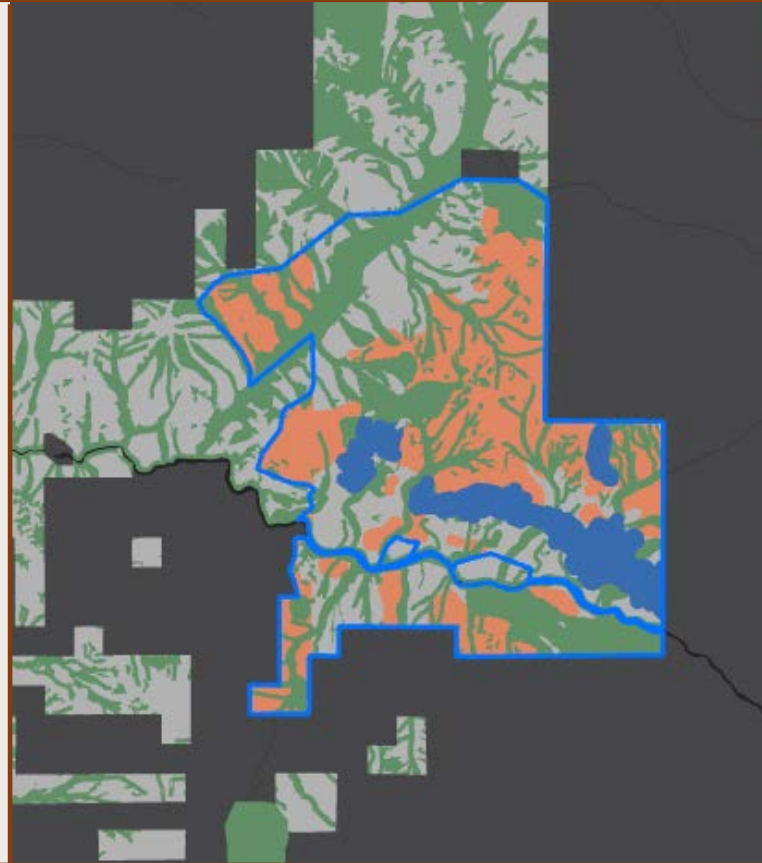


# MARBLED MURRELET MANAGEMENT AREAS

Largest areas of habitat with some management, an approach informed by the 2008 Science Team Report

**Benefits:** Conserves the largest cohesive blocks of habitat

**Concerns:** Active management occurs until desired condition reached



## Public Comments:

- Confusion around what is allowed
- Calls for more restrictions

Alt F: 66 MMMA, 75,000 acres

# Components by Alternative

	A	B	C	D	E	F	G	H**
Occupied sites	✓	✓	✓	✓	✓	✓	✓	✓
Occupied site buffers	✓		✓	✓	✓	✓	✓	✓
Habitat under interim strategy	✓					✓*		
Marbled murrelet management areas						✓	✓	
Emphasis areas			✓		✓		✓	
Special habitat areas			✓	✓	✓		✓	✓
High quality P-stage habitat (>=.47)			✓		✓		✓	
Low quality NSO Habitat						✓		

\*Includes old forest habitat, old forest buffers, and high quality adjusted habitat in OESF

\*\* Includes a delay of the harvest of habitat during the first decade, otherwise known as “metering”

# Acres by alternative

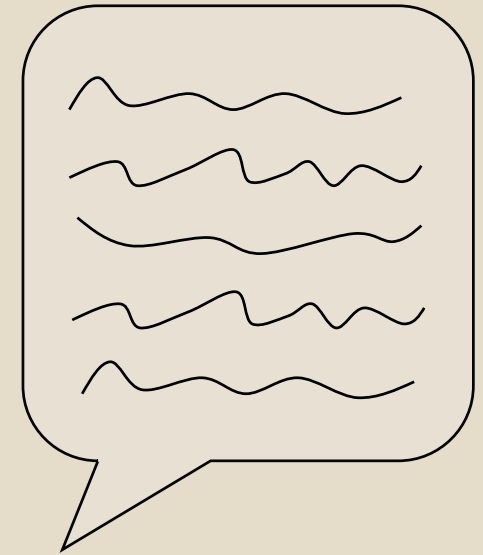
Thousand Acres of Long-term Forest Cover (LTFC)

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>
Existing conservation that may provide benefits to marbled murrelets	567	567	567	567	567	567	567	567
Marbled murrelet specific conservation	33	9	49	51	54	176	75	37
Total approximate acres	600	576	617	618	621	743	642	604



# Public Comment

## Major Themes





# Public Comments - Overarching Themes

## **Insufficient environmental analysis**

- Taxing district analysis needed
- Stronger environmental justice analysis required under NEPA
- Climate analysis concerns
- Recreational flexibility needed

## P-stage and analytical framework errors

- P-stage is not accurate
- Take is overestimated in narrow areas of habitat outside of LTFC
- Mitigation is underestimated in analytical framework



# Affected Environment

Earth: Geology and soils

Climate

Vegetation

Aquatic Resources

Wildlife and Biodiversity

Marbled Murrelet

Recreation

Forest Roads

Public Services and Utilities

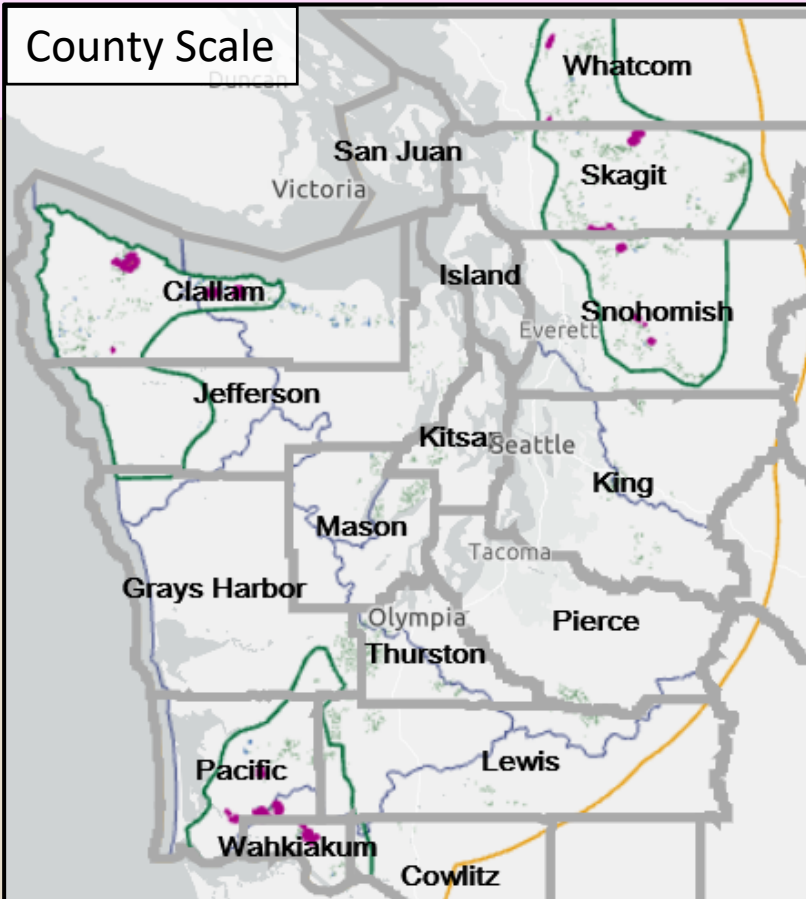
Environmental Justice

Socioeconomics

Cultural and Historic Resources



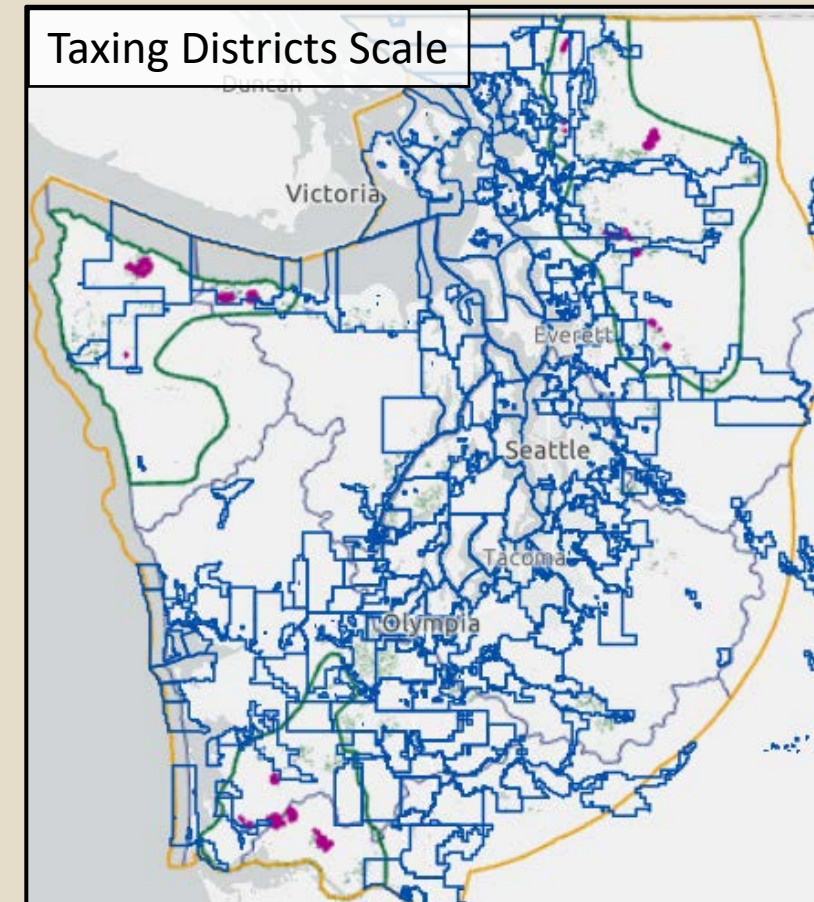
# Socioeconomic Analysis



## Public Comment

...“aggregating information may result in an ‘averaging over’ of a land manager's actions.”

... “leaving the impression that Alternative H would have a positive impact in spite of additional operational acres being reduced in the Clallam State Forest Lands.” (S-267)



# Operable Acres

Assumed operability potential based on management objectives

## General Ecological Management (1)

Subject to relevant laws and policies  
- available for harvest

## Special Objectives (0.55)

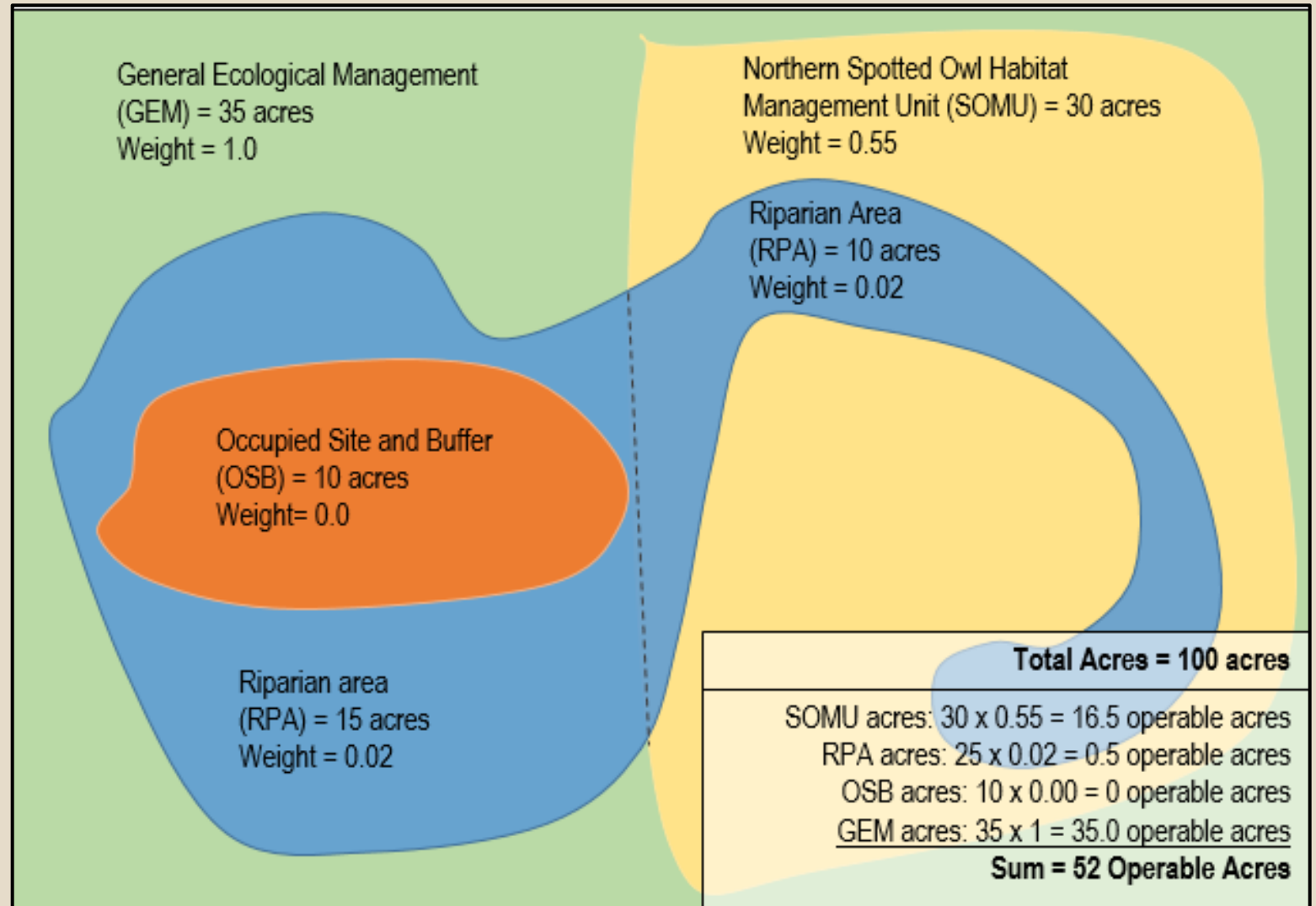
E.g. northern spotted owl or hydrologic maturity - based on harvest levels over last 10 years

## Riparian Areas (0.02)

Based on actual harvest levels over last 10 years

## Deferred Areas (0)

E.g. Occupied sites and buffers, natural areas - no harvest



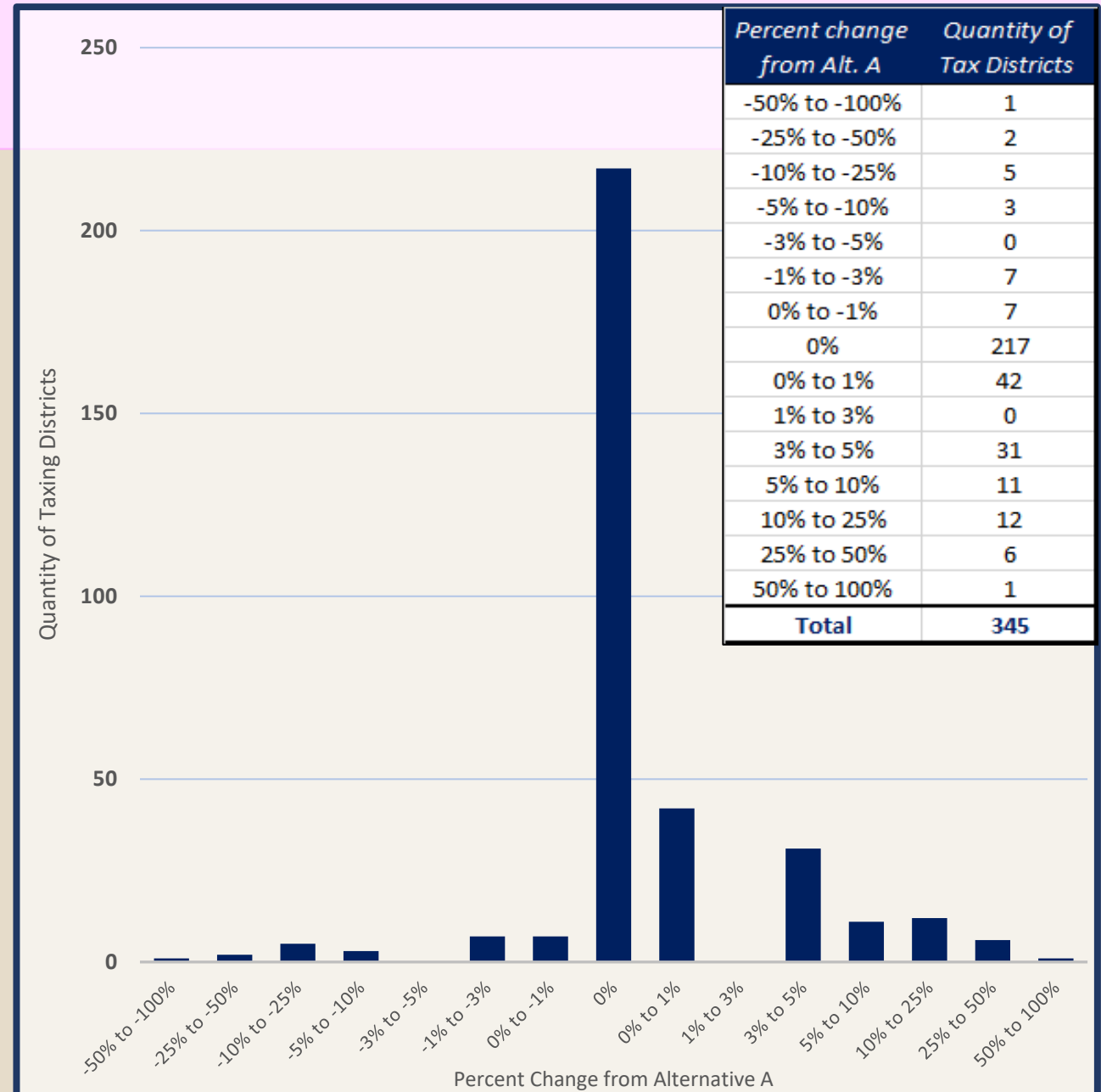
# Socioeconomic Analysis

## Result:

## Taxing District Analysis

(see FEIS Appendix R)

**State Forest Transfer Lands  
Taxing Districts:**  
Change in Operable Acres from  
Alternative A Under  
the HCP Amendment



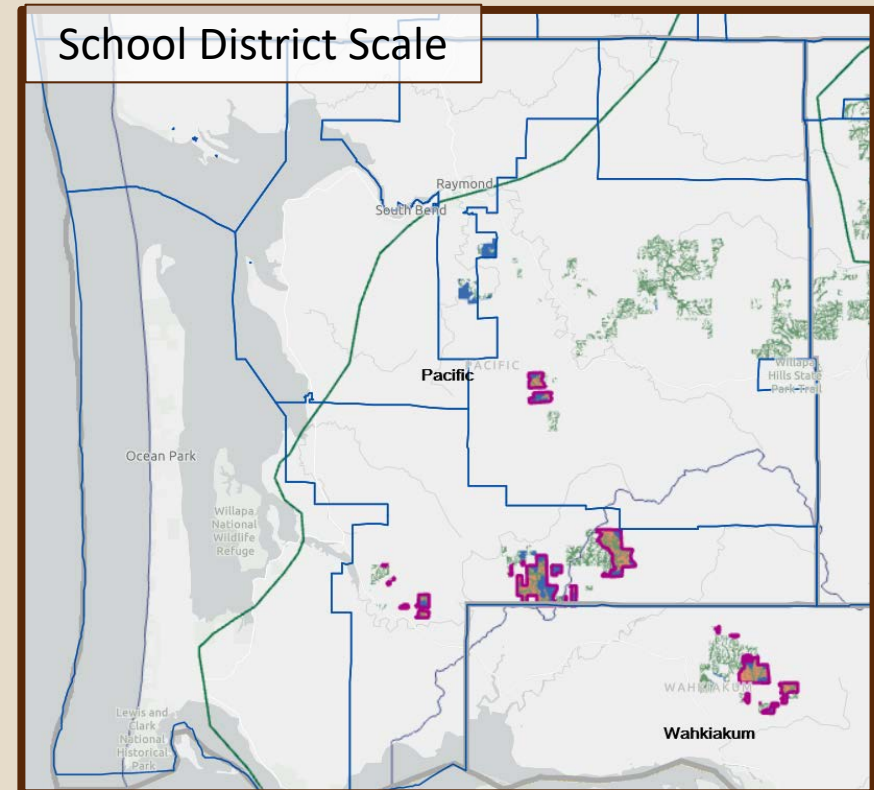
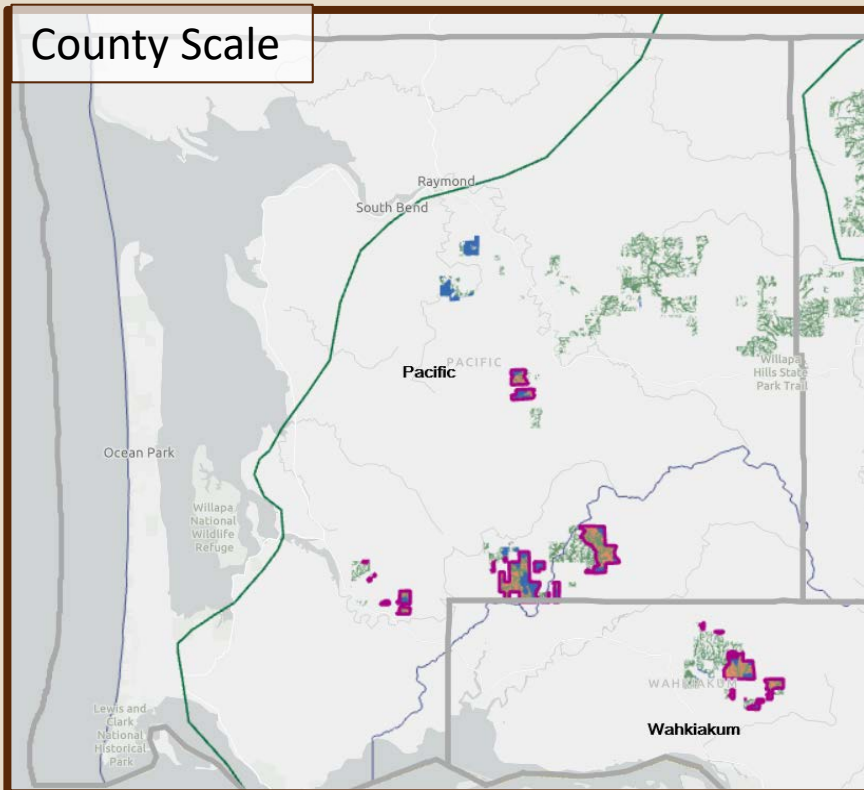
# Socioeconomic Potential Impacts

Criteria	County-scale Analysis		Taxing District Analysis
<b>Trust Revenues</b>	Overall decrease		<b>HCP Amendment:</b> > 10% adverse impacts in 8 districts of 345 districts with Transfer Lands > 10% adverse impacts in 3 districts of 102 districts with Purchase Lands
	Alts C,D,E,G	Adverse impact: <ul style="list-style-type: none"> <li>• Pacific Transfer &amp; Purchase</li> <li>• Wahkiakum Transfer</li> </ul>	
	Alt F:	Adverse impact: <ul style="list-style-type: none"> <li>• Pacific Transfer &amp; Purchase</li> <li>• Wahkiakum Transfer</li> <li>• Whatcom Transfer</li> </ul>	
	Alt H:	Adverse Impact: <ul style="list-style-type: none"> <li>• Pacific Transfer &amp; Purchase</li> </ul>	
<b>Other revenue:</b>	Overall decrease		
<b>County Employment</b>	Alts C – H	Decreased Employment possible: <ul style="list-style-type: none"> <li>• Pacific</li> <li>• Wahkiakum</li> </ul>	
<b>Other Services</b>	No measurable impacts		

# Environmental Justice

## Public Comment:

Need to “better examine long-term impacts on low-income rural and minority populations, particularly in smaller communities ...”



# Environmental Justice Potential Impacts

*Disproportionately high impacts on low-income or minority populations*

Criteria	Analysis Area Scale
Human health Environmental Economic effects	<i>No disproportionate</i> impacts expected
<b>School Districts Impacts</b>	Adverse impacts <i>not concentrated</i> on school districts with high proportions of low-income and/or minority student enrollment





# Climate

Criteria	Potential Impacts
Greenhouse gas emissions	All Alternatives: Sequestration is greater than emissions
Alternatives impacts on climate	Alts C – H expected to increase resilience of LTFC

## Public Comment:

“DNR looked at climate impacts due to the alternatives but did not analyze the long-term impacts of climate change on murrelets and their habitat.”



## Result:

### Cumulative Impacts Analysis

*(Chapter 5)*

Climate change is expected to affect marine and terrestrial murrelet habitats

# Recreation

Criteria	Potential Impact
Impacts on recreation	No impacts to existing developed or dispersed recreation expected
	Increase recreation planning certainty
	Shift recreation to other areas
	Could result in unauthorized uses in other areas Potential effects to some local user groups

## Public Comment:

Requests that “flexibility be given to allow undesignated trails to become designated trails where they can work within the strategy.”



## Result:

- Existing trails are allowed
- New trails may be allowed in some areas

# Public Comments - Overarching Themes

## Insufficient environmental analysis

- Taxing district analysis needed
- Stronger environmental justice analysis required under NEPA
- Climate analysis concerns
- Recreational flexibility needed

## **P-stage and analytical framework errors**

- P-stage is not accurate
- Take is overestimated in narrow areas of habitat outside of LTFC
- Mitigation is underestimated in analytical framework

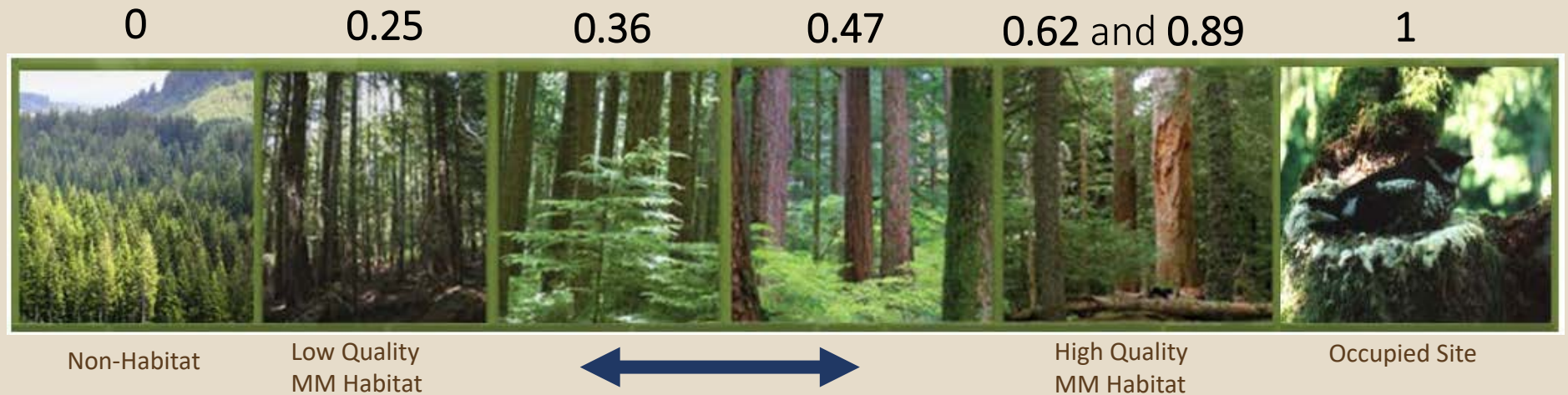


# P-stage Accuracy

## Public Comments:

- concern about the accuracy of DNR's P-stage model....” (see pages S-245 through 248)
- “questioned whether particular stands are appropriately identified as p-stage (S-249)
- “extent of occupied habitat is unknown...potential for undocumented take of habitat...”
- “WDFW identified 1,540 acres that they believe should be high quality habitat.”

### Habitat vs. Non-Habitat P-stage values



# — P-stage Accuracy —

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## Public Comments:

- “concern about the accuracy of DNR’s P-stage model....” *(see pages S-245 through 248)*
- “questioned whether particular stands are appropriately identified as p-stage *(S-249)*
- “extent of occupied habitat is unknown...potential for undocumented take of habitat...”

## Results:

Forest stands without field sample plot data replaced with RS-FRIS data – enables DNR to generate up-to-date data such as tree height, stand density, basal area and volume for forest across large areas.

*Decreased # of raw acres of habitat by 4,060 acres*

RS-FRIS:  
*(Remote Sensing-  
Forest Resource  
Inventory System)*

# P-stage Accuracy *continued...*

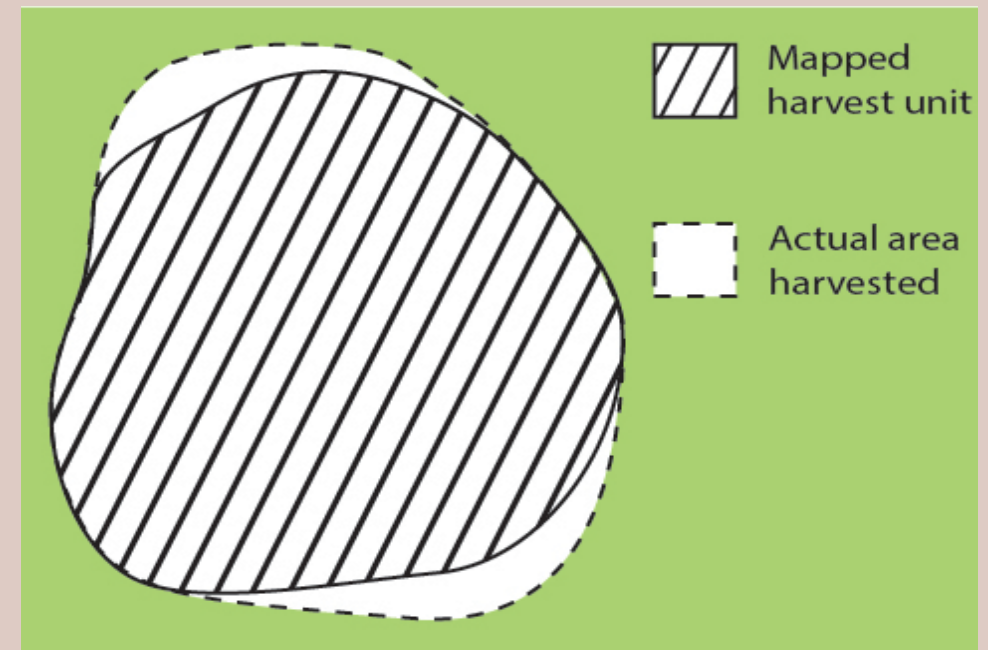
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- “extent of occupied habitat is unknown...potential for undocumented take of habitat...”

## Results:

Updated stand delineation – slivers of identified habitat were actually part of harvest units

*Decreased marbled murrelet habitat acres by 1,184 raw acres*



# — P-stage Accuracy *continued...*

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## Public Comment:

- “WDFW identified 1,504 acres that they believe should be high quality habitat.”

## Results:

### WDFW stands were reassessed

- Increased marbled murrelet habitat acres by 662 acres
- Remaining 842 acres already protected habitat



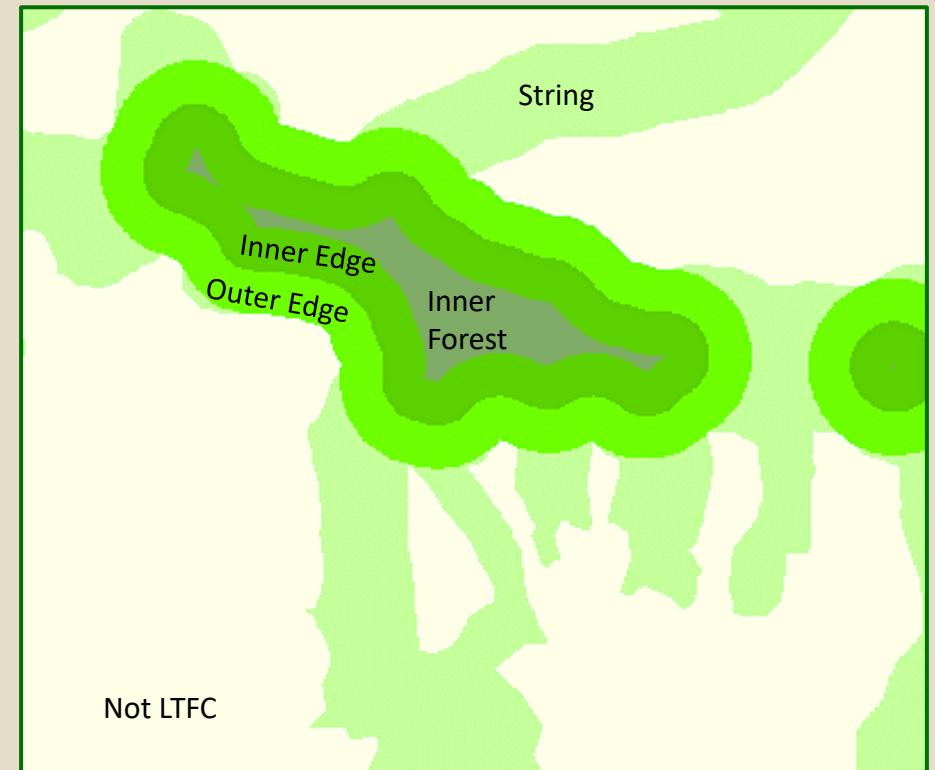
# Overestimating Mitigation

Public Comment:

Analytical framework error identified - double counted edge

## Result:

- Corrected computation methods in the mitigation calculation
  - only applied once
- Increased acres of mitigation for all alternatives





# Overestimating Impact

## Public Comment:

“...value of narrow areas of habitat to marbled murrelet?”



## Result:

- Corrections to computation methods in the take calculation  
*(added edge discount to marbled murrelet habitat less than 200 meters wide, outside of LTFC)*
- Reduced acres of impact for all alternatives

# After the Corrections

## Total Marbled Murrelet Habitat *Acres in P-stage*

RDEIS	FEIS	Difference
211,650	207,067	4,583

# The Corrections

Alternative	RDEIS Mitigation Acres	RDEIS Impact Acres	RDEIS Mitigation minus Impact	Revised Mitigation Acres	Revised Impact Acres	Revised Mitigation minus Impact
<b>Alt. A</b>	11,831	11,342	488	12,793	10,029	2,764
<b>Alt. B</b>	8,297	14,620	-6,325	8,981	13,310	-4,329
<b>Alt. C</b>	12,371	8,935	3,339	12,998	8,028	4,971
<b>Alt. D</b>	11,778	12,426	-651	12,412	11,192	1,220
<b>Alt. E.</b>	12,758	8,643	4,116	13,469	7,742	5,727
<b>Alt. F</b>	19,842	7,115	12,726	21,253	6,047	15,205
<b>Alt. G</b>	14,911	6,284	8,626	15,890	5,509	10,038
<b>Alt. H</b>	12,070	11,335	735	12,743	10,119	2,624

# Preferred Alternative - Adjusted

*Special Habitat Areas (SHAs)* reduced by size and number, by following criteria:

- Distributed across the three strategic locations
- Mitigation exceeds impact in OESF, Straits and SWWA strategic locations
- Included *SHAs* with *occupied sites* and existing *high and low quality habitat*
- Boundaries are based on operational lines

<b>Mitigation</b>	<b>Impacts</b>	<b>Difference</b> ( <i>epsilon</i> )
11,898 adjusted acres	11,089 adjusted acres	809 adjusted acres

Changes raw acres of LTFC from 610,000 to 604,000

# Alternative H – *Changes between the RDEIS and FEIS*

## RDEIS: Alternative H

### DNR's preferred alternative

- 29 special habitat areas in strategically important locations
  - 23 contained at least one occupied site
- Mitigation exceeded impact by 735 adjusted acres to account for possibility of natural disturbance
- Metered 3,600 adjusted acres of current habitat to beginning of second decade
- Included ~610,000 acres of LTFC

## FEIS: Alternative H

### Joint Agencies' preferred alternative

- 20 special habitat areas in strategically important locations
  - 19 contain at least one occupied site
- Mitigation exceeds impact by 809 adjusted acres to account for possibility of natural disturbance
- Meters 5,000 adjusted acres of current habitat to beginning of second decade
- Includes ~604,000 acres of LTFC



# Agenda for Today

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- Development of the Environmental Impact Statement (EIS)
- Overview of the Final EIS
- **The Amendment to the HCP**



# Board Principles

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- ☑ **• Minimize impacts to marbled murrelets**
  - Occupied sites
  - Existing habitat in conservation areas
  - Metering in strategic locations
- ☑ **• Offset impacts and address uncertainty**
  - Buffer occupied sites
  - Conservation in strategically important locations
  - Increase interior forest
- ☑ **• Reduce disproportionate impacts to trust beneficiaries**

# Components of the Amendment

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- Murrelet specific conservation

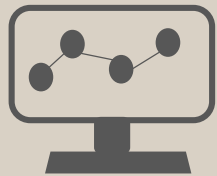


- Existing conservation

- Restrictions in conservation areas



- Metering

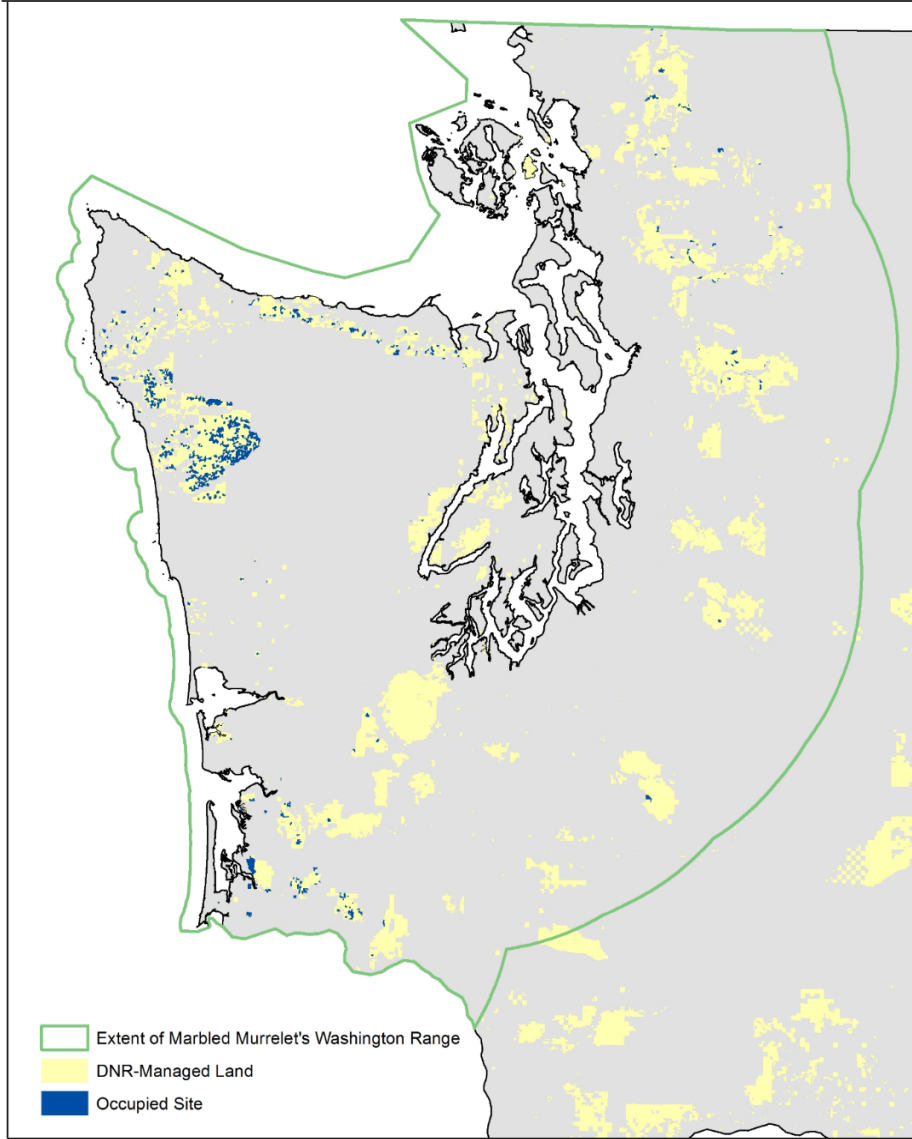


- Monitoring

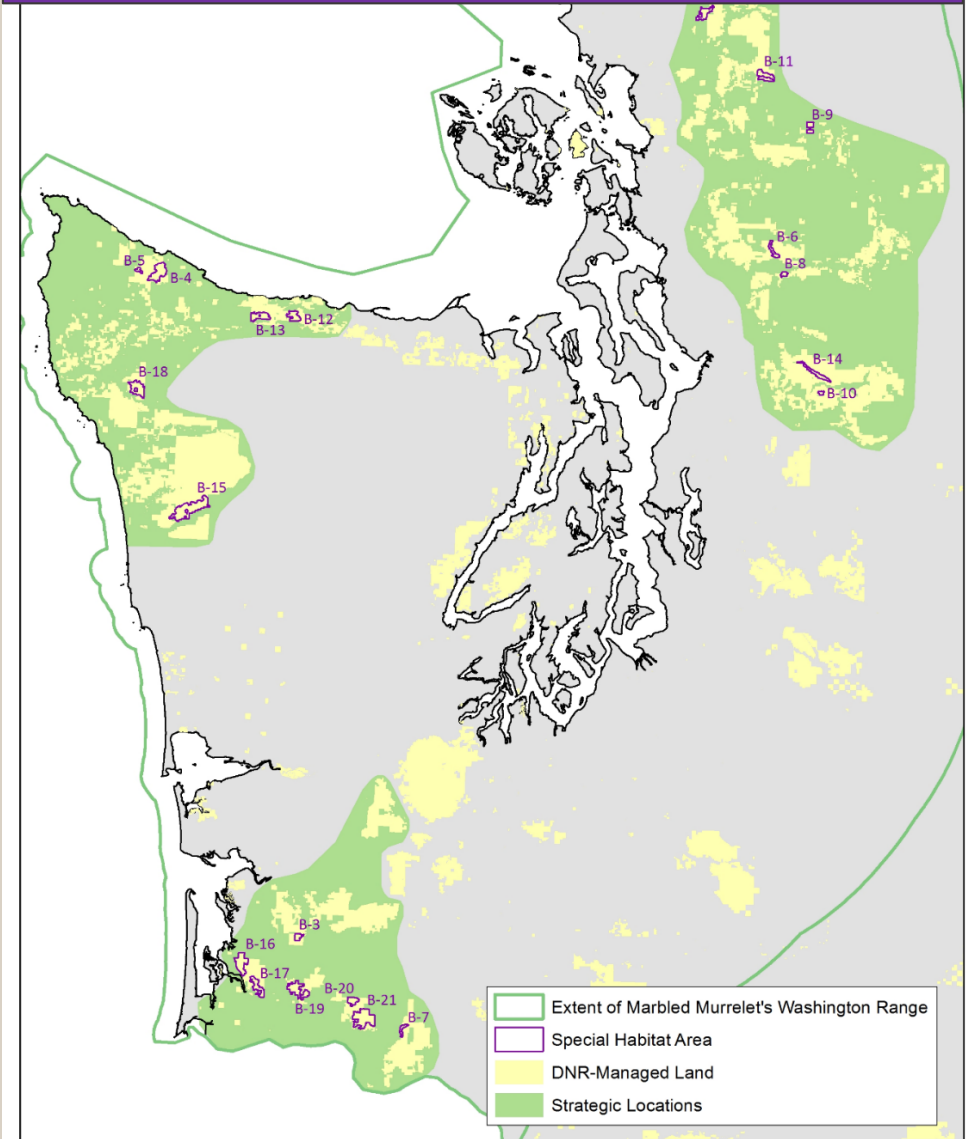
- Reporting



## Marbled Murrelet Occupied Sites



## Marbled Murrelet Special Habitat Areas



# The Amendment - By the Numbers

<b>Land Area</b>	<b>Acres</b>
Occupied Sites (388)	59,000
Occupied Site Buffers	33,000
Special Habitat Areas (20)	47,000
Existing Conservation	567,000

<b>Habitat</b>	<b>Acres</b>
Current (2019)	207,000
Habitat conserved	168,000
Habitat released	39,000
Total Habitat in 50 years	272,000
<b>Habitat Grown</b>	<b>104,000</b>
Net increase in Habitat	32%



# Why the HCP Amendment?



Best balances mitigation and impacts; accounts for uncertainty



Minimizes incidental take



Increases habitat by 32%



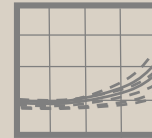
2<sup>nd</sup> highest level of revenue



Protects existing nesting areas and strategic long-term habitat development



Based on sound science



Maintains populations



Consistent with existing policies and regulatory environment

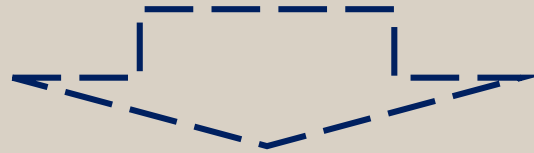


Establishes long-term habitat development in strategic locations

# The Amendment

## *Changes from Alternative H*

<u>Alternative H</u>	<u>The Amendment</u>
604,466 acres of LTFC	604,907 acres of LTFC



### The Difference

- 441 more acres of LTFC
- Additional acres are in 3 special habitat areas in southwest Washington
- Accounts for possibility of natural disturbance with mitigation exceeding impacts by 706 adjusted acres



# Significant contribution

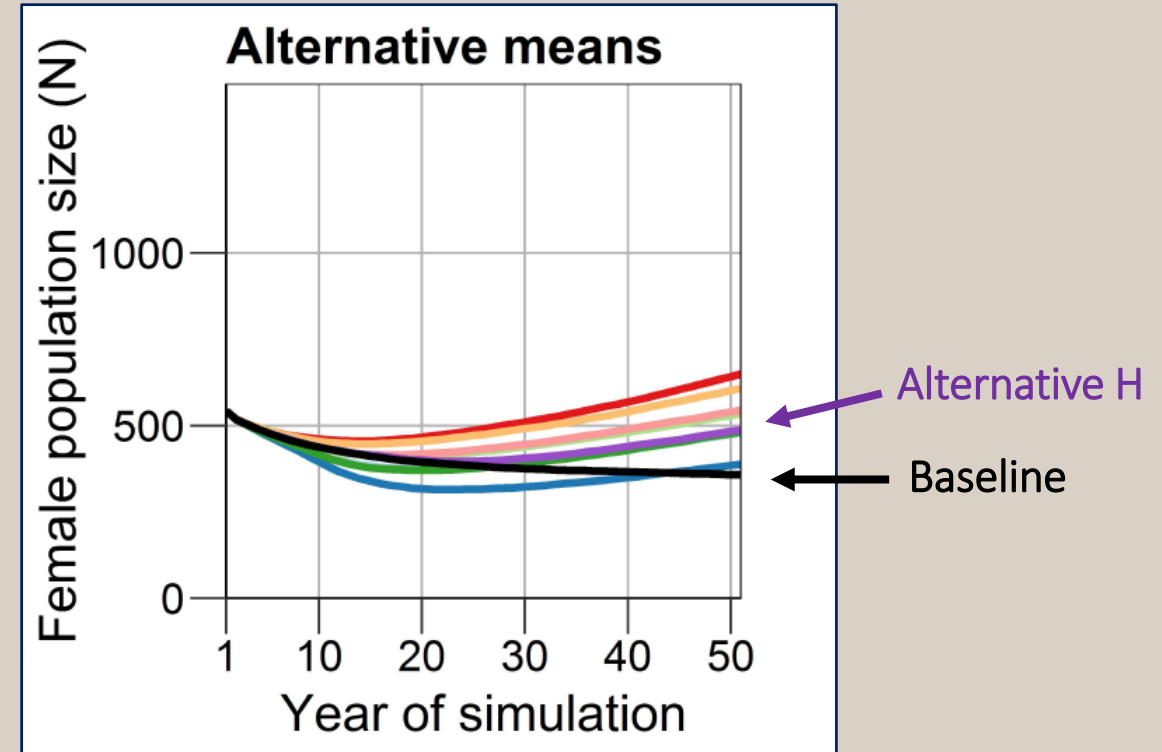
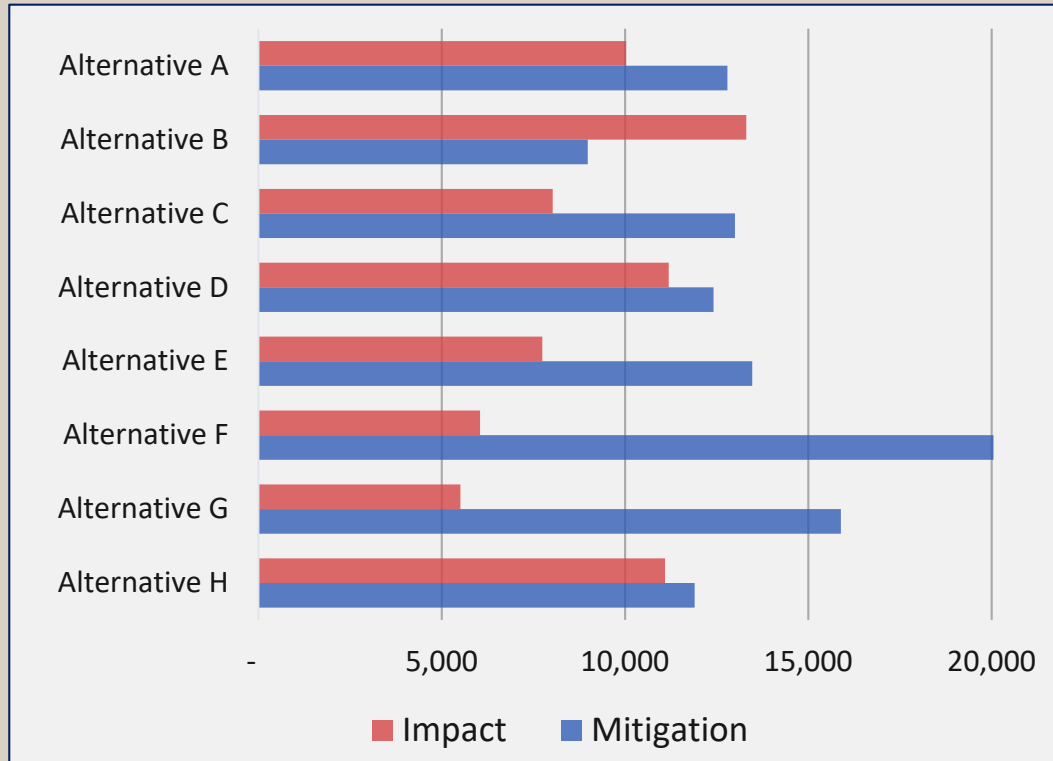
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“This process should result in a comprehensive, detailed landscape-level plan that would help to meet the recovery objectives of the U.S. Fish and Wildlife Service, contribute to the conservation efforts of the President’s Northwest Forest Plan, and make a significant contribution to maintaining and protecting marbled murrelet populations in western Washington over the life of the HCP.”

DNR 1997 Habitat Conservation Plan, page IV.44

# Significant contribution

## 1. Numbers of murrelets



Enhancement Analysis - DNR lands  
Peery and Jones 2019  
Appendix C

# Significant contribution

## 2. Reproduction

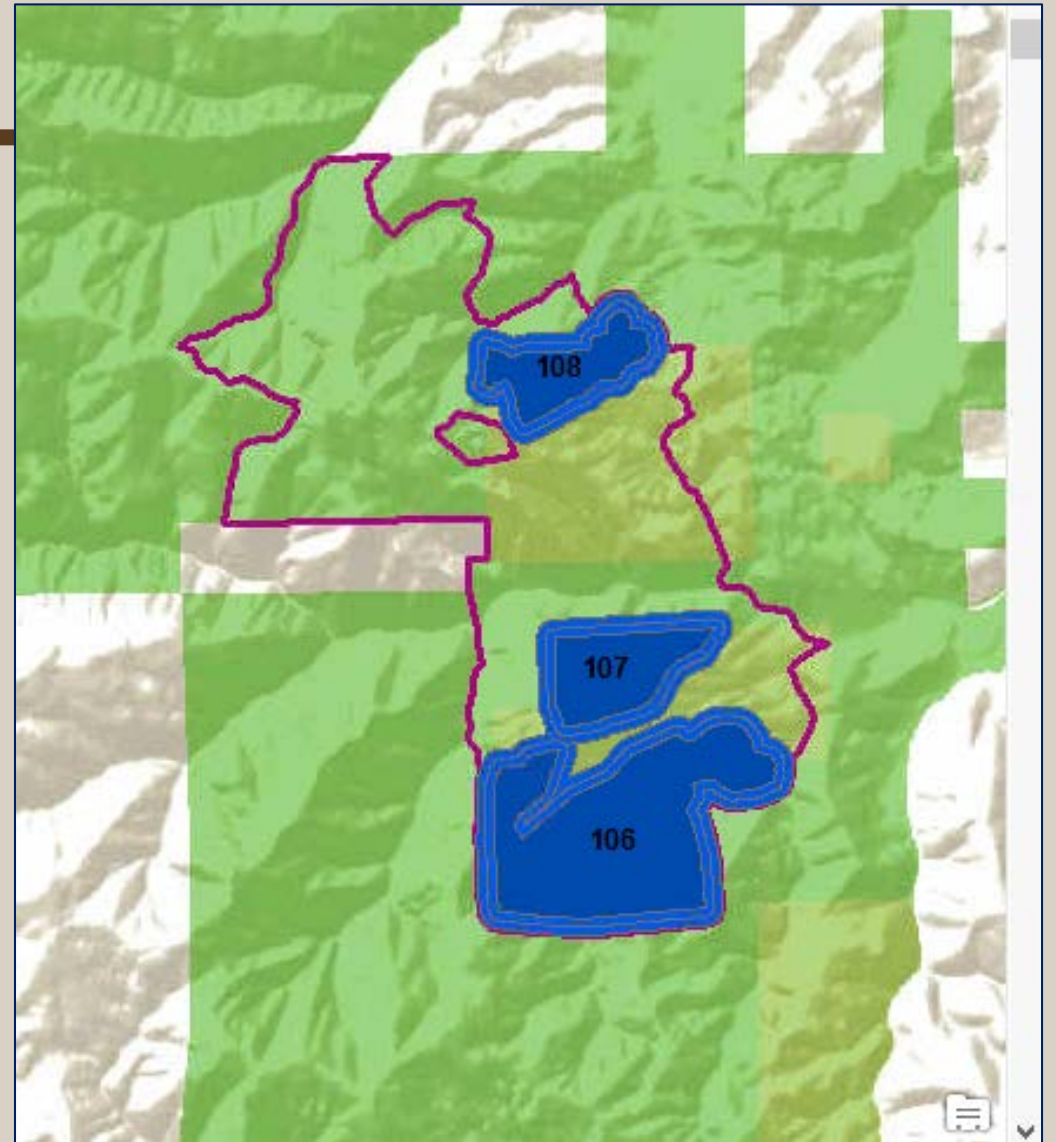
Occupied Sites

Occupied Site Buffers

Special Habitat Areas



Secure  
Locations



# Significant contribution

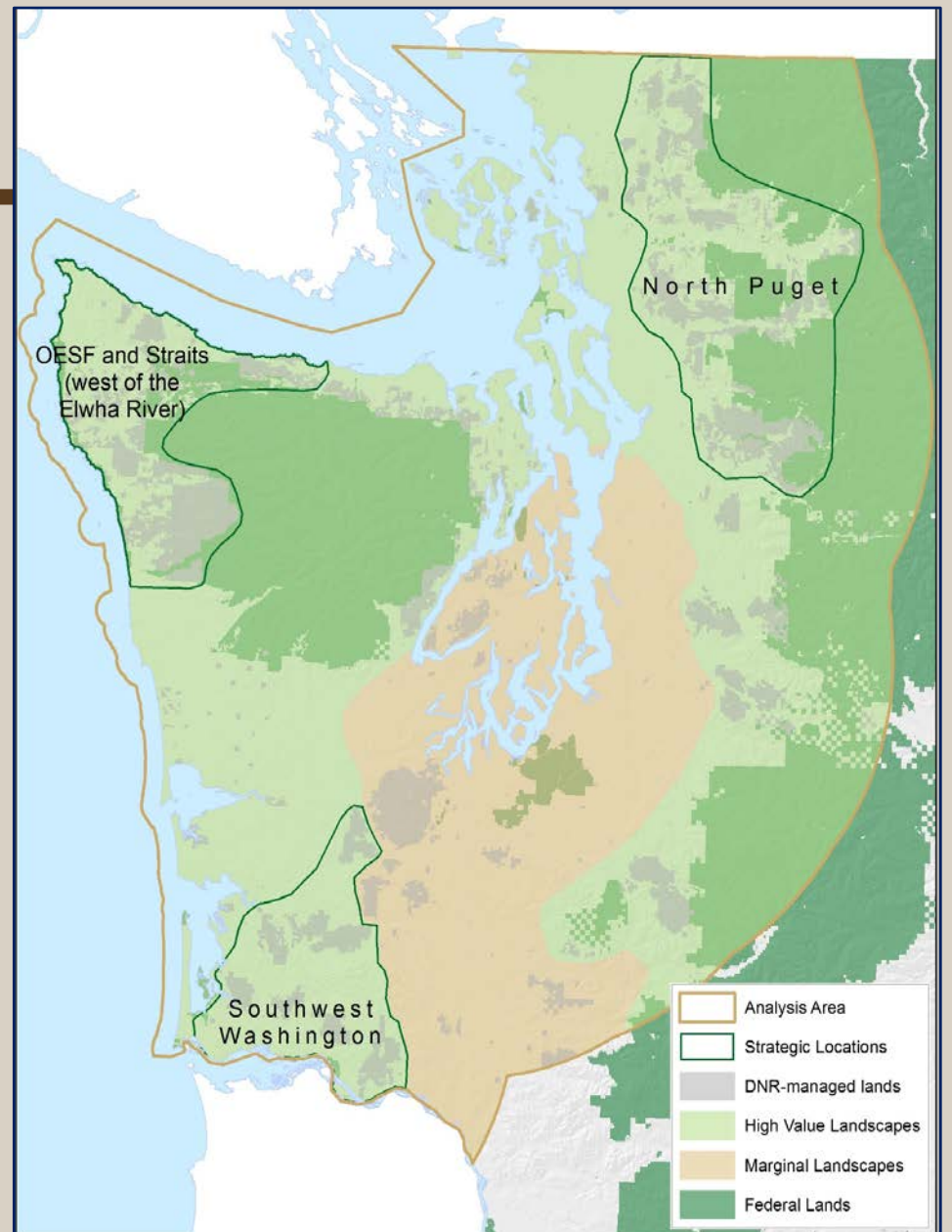
## 3. Distribution

### Strategic Locations

Geographic areas with disproportionately high importance for marbled murrelet conservation

### SHA selection

Location  
Existing habitat  
Future habitat





# In Summary

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- Development of the Environmental Impact Statement (EIS)
- Overview of the Final EIS
- The Amendment to the HCP



# Next Month

## The Sustainable Harvest Level

- What is it ?
- Why do we have to calculate it?
- What affects the decision?



