



MMLTCS and SHC Alternatives

A report to the Board of Natural Resources

presented by

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June 6, 2017



Timeline

July 2017: Preferred Alternative

March 2018: Publish FEISs

April 2018: **BNR Decision on amendment to submit to USFWS**

October 2018: USFWS approvals

November 2018: **BNR adoption**

- Marbled murrelet long-term conservation strategy
- Sustainable harvest level



Today's Objectives

Review the three decision points

Discuss the decision making process



How to pick a preferred alternative

Marbled Murrelet Option

- Meet issuance criteria
- Provide a significant contribution
- Be in the best interest of the trust

Arrearage Option

- Be in the best interest of the trust

Riparian Option

- Be in the best interest of the trust



Today's Outline

Four Parts:

- I. Marbled Murrelet
- II. Arrearage
- III. Riparian
- IV. Decision Making





Part I

Marbled Murrelets

Outline

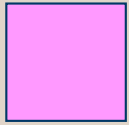
- Context
- Components of the Alternatives



How the alternatives were built

USFWS and DNR collaboratively developed a range of alternatives to satisfy both the National Environmental Policy Act & State Environmental Policy Act, using **best available science** and **respect for the objectives of each agency's mission**

Marbled Murrelet Range



Permanent Resident



Breeding Resident



Nonbreeding resident

Map created by Terry Sohl
Data from NatureServe

Range Wide Population Estimates

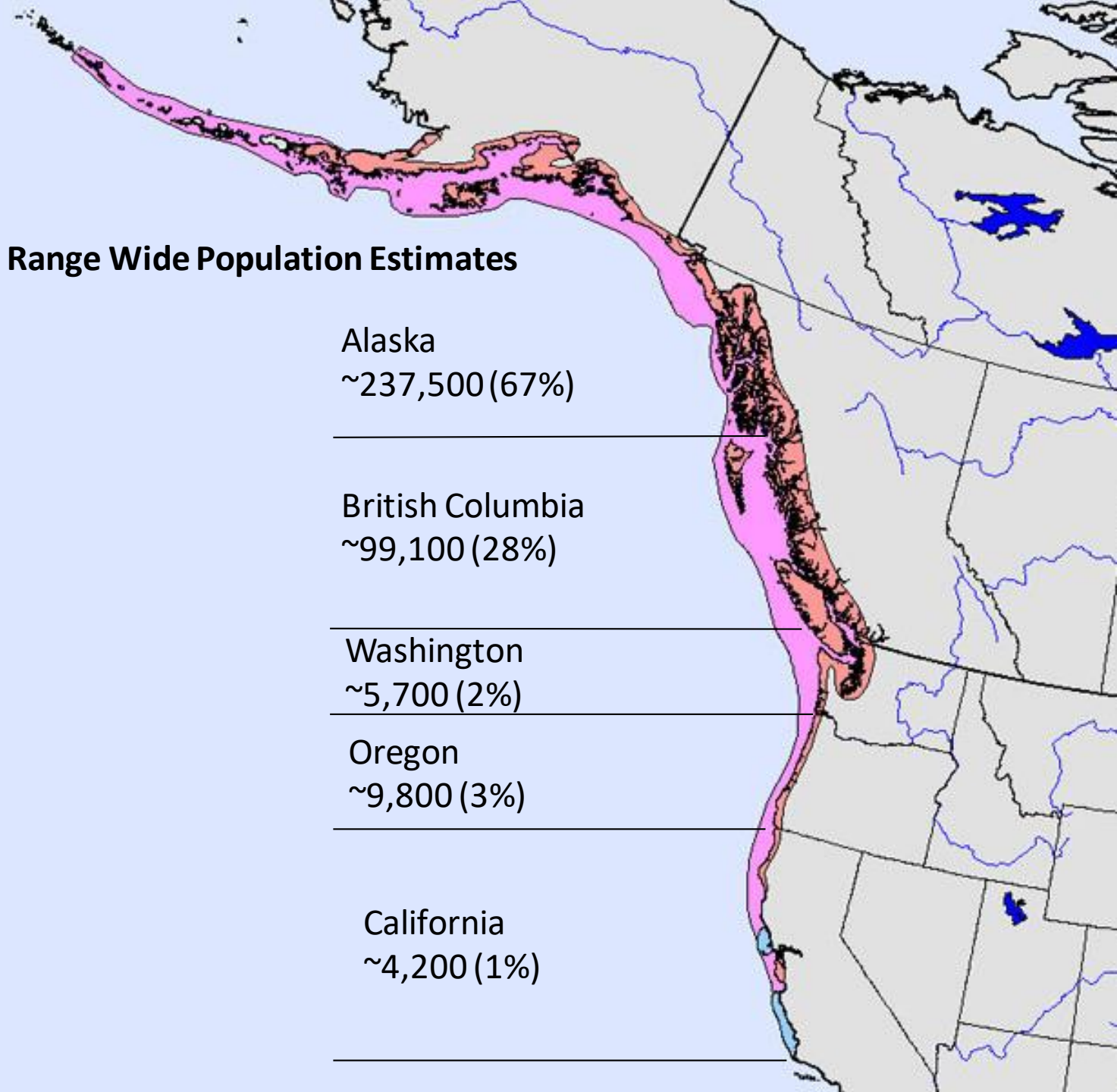
Alaska
~237,500 (67%)

British Columbia
~99,100 (28%)

Washington
~5,700 (2%)

Oregon
~9,800 (3%)

California
~4,200 (1%)



Marbled Murrelet Status

- Listed as threatened WA, OR and CA in 1993
- 2013 WA, OR, CA estimate ~ 19,700 birds
 - WA: 7,232 birds*
 - DNR: 1,084 birds*

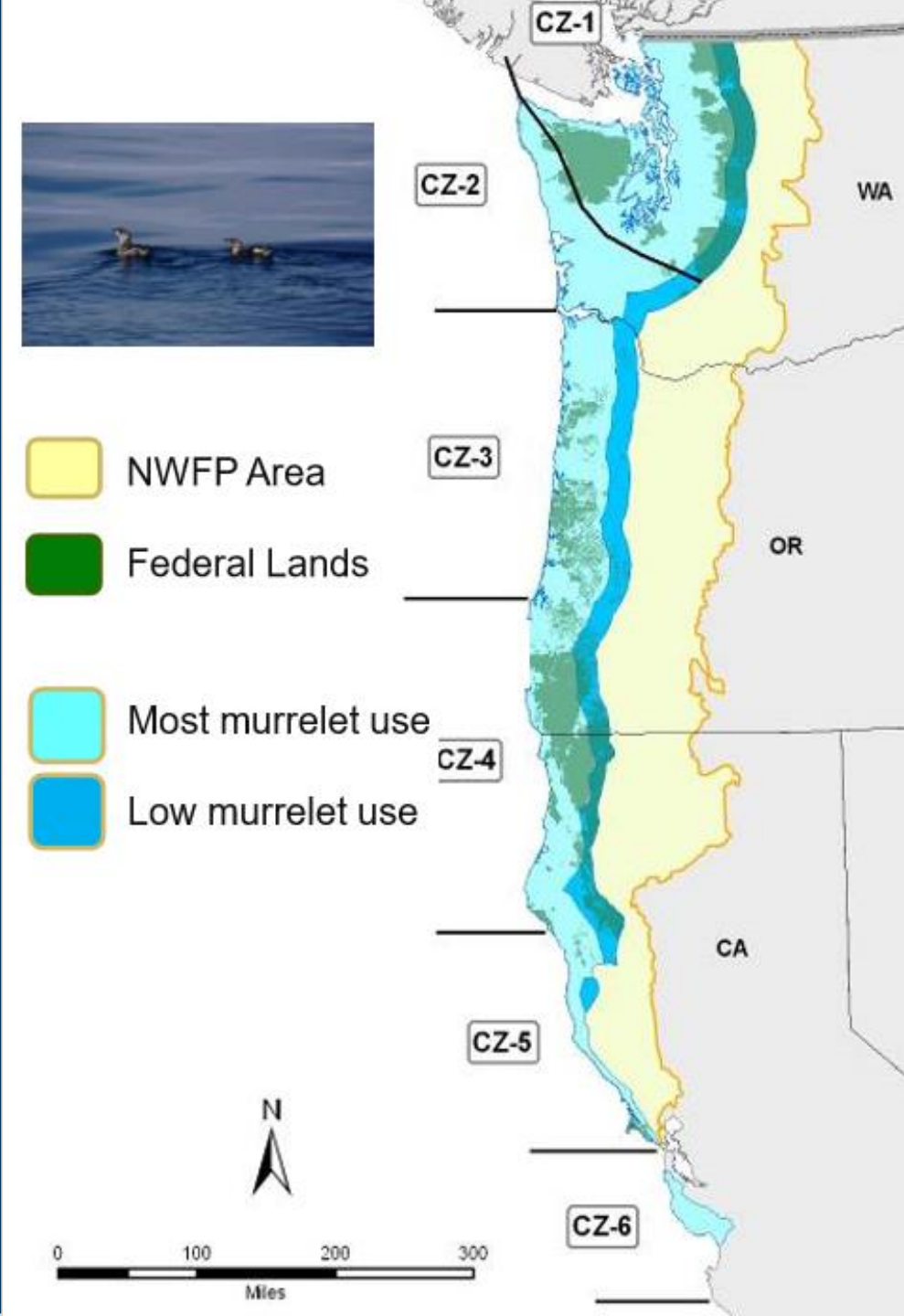
*From Peery and Jones 2016 (2011-2015 WA population estimate average)

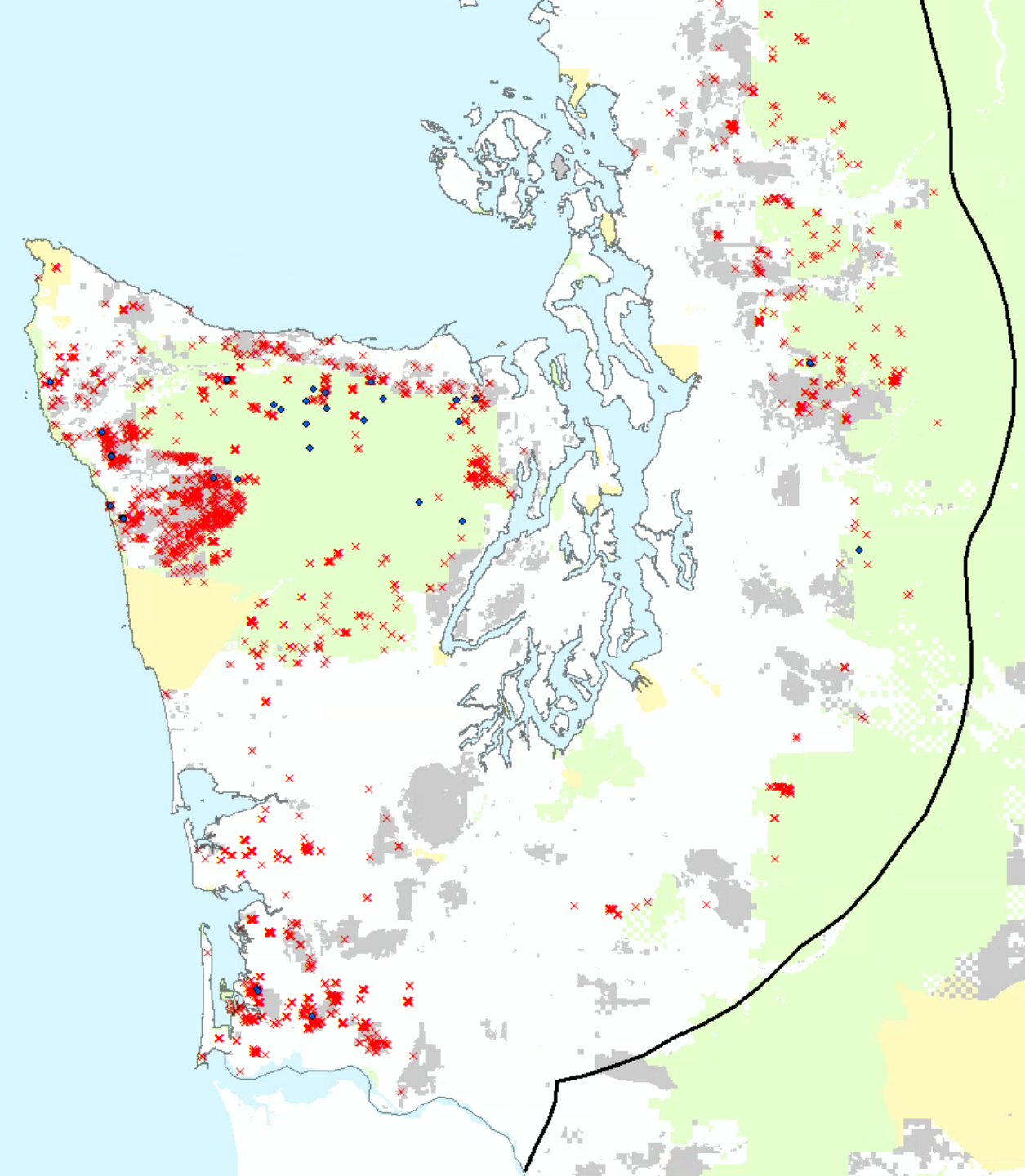
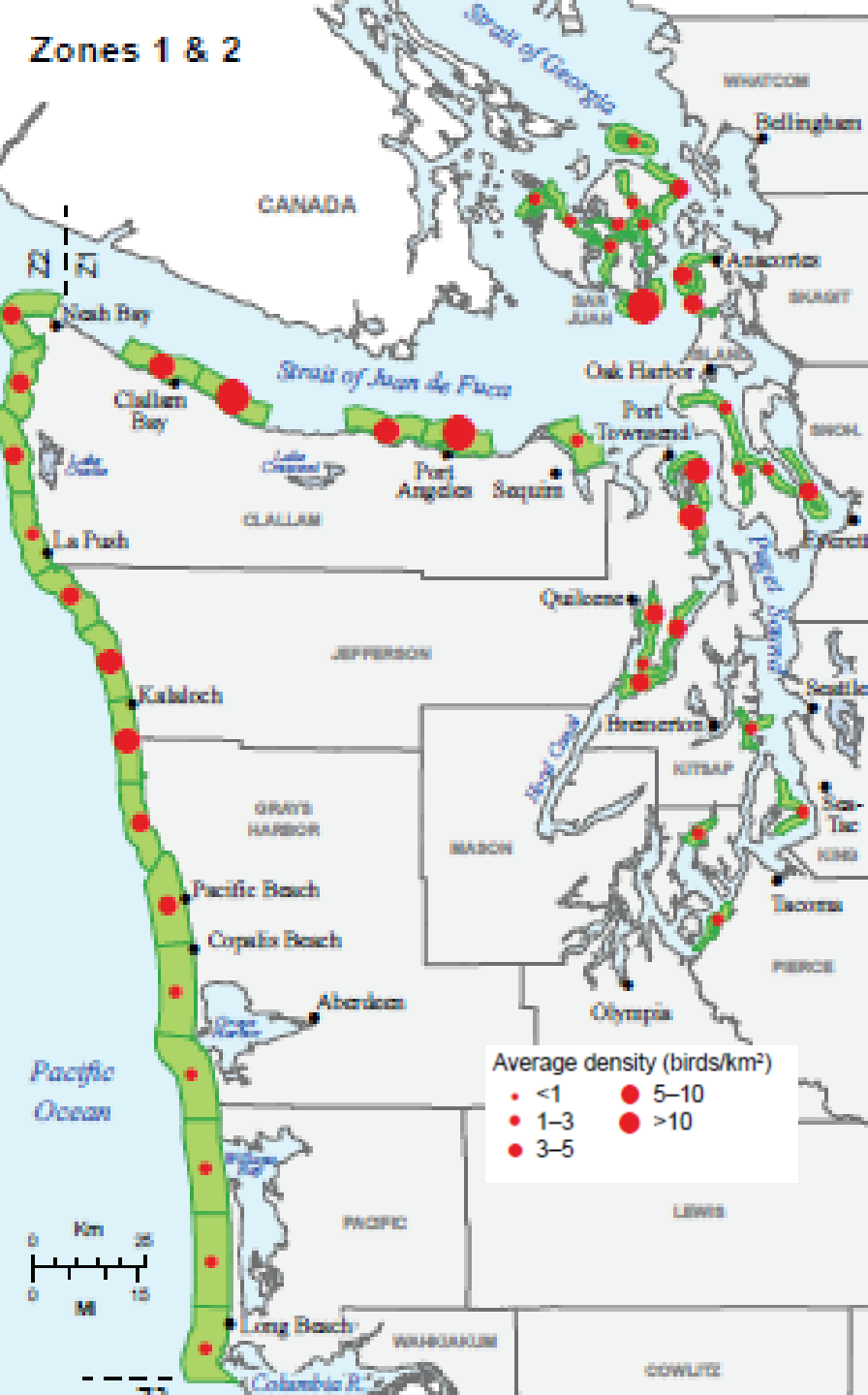
• Population Trend

- Northwest Forest Plan Area (map area)
 - 2001-2013: 1.2% decline per year
- Washington State
 - 2001-2013: 4.6% decline per year

• Habitat Trend

- Northwest Forest Plan Area (map area)
 - 1993 – 2012: 12.1% decline
- Washington State
 - 1993 – 2012: 13.3% decline





Habitat Status

DNR manages 1.4 million acres within the planning area
(That's 9% of the planning area)

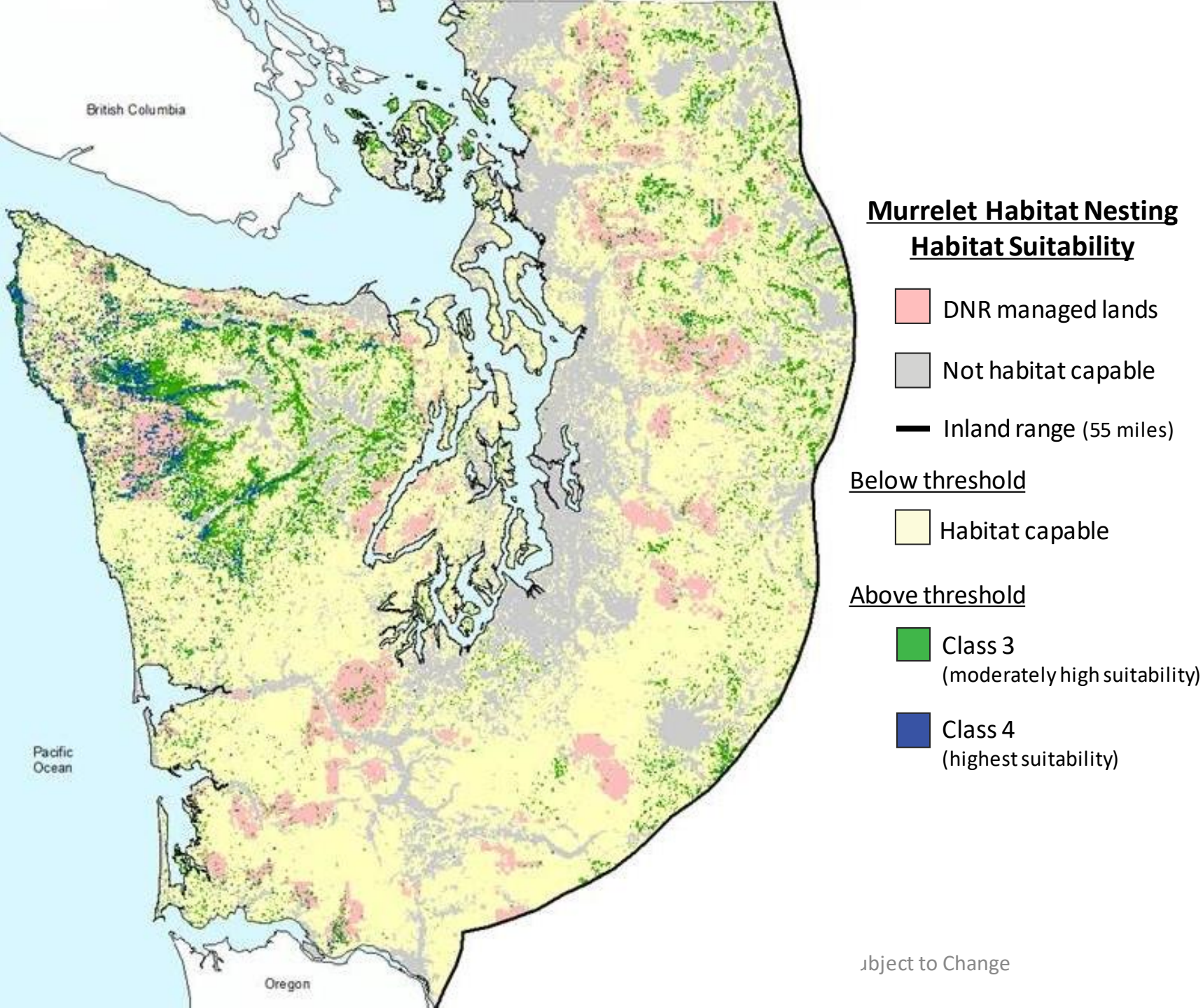
% of WA habitat by ownership

DNR | 14

Federal | 65

Tribal Government | 2

Other Ownerships | 19



— What is known



Washington's **population is declining**, especially in the southwest.



Murrelets need **forested habitat** for nesting.



Federal lands are key to recovery, however in **southwest WA** state land will play a critical role.



Uncertainties remain

Potential factors causing population decline include:

- Loss of nesting habitat
(including cumulative and time-lag effects of habitat losses over the past 20 years)
- Changes in the marine environment reducing availability and quality of prey
- Increased densities of nest predators



Principles of Conservation

Key characteristics identified as effective habitat elements

- Strategically located
- Contiguous blocks
- Limited disturbance



— Designing a strategy to meet the need and objectives

Need

1. Obtain long-term certainty of forest management activities
2. Meet issuance criteria under ESA

Objectives

1. Generate revenue
2. Habitat in strategic locations
3. Sustainable forest management practices
4. Operational flexibility
5. Implementation certainty



— Basic building block for all alternatives

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.

Components of LTFC



Marbled Murrelet Specific Conservation Components

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

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: 390 sites, 8,000 acres
Alt B-F: 402 sites, 10,000 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



HIGH QUALITY HABITAT

Existing stands with P-stage ≥ 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: 7,000 acres

Alt E: 7,000 acres



4. Special Habitat Areas

5. Emphasis Areas

6. Marbled Murrelet Management Areas

These last three are **conservation approaches** aimed at providing **current and future interior habitat** for the marbled murrelet.



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, 28,000 acres
Alt E: 25 SHAs, 13,000 acres

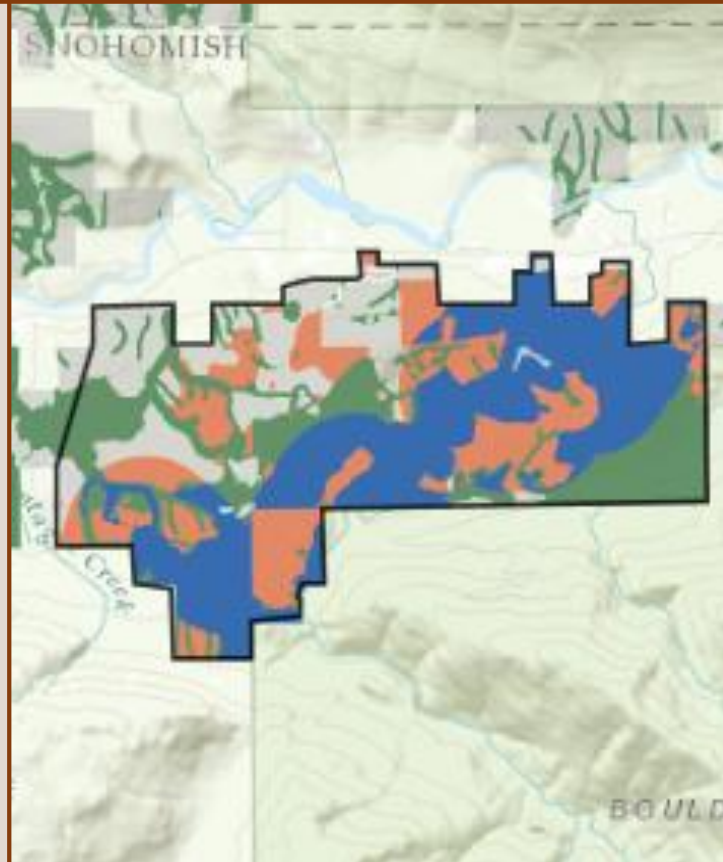


EMPHASIS AREAS

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 blocks, 14,000 acres

Alt E: 7 blocks, 14,000 acres

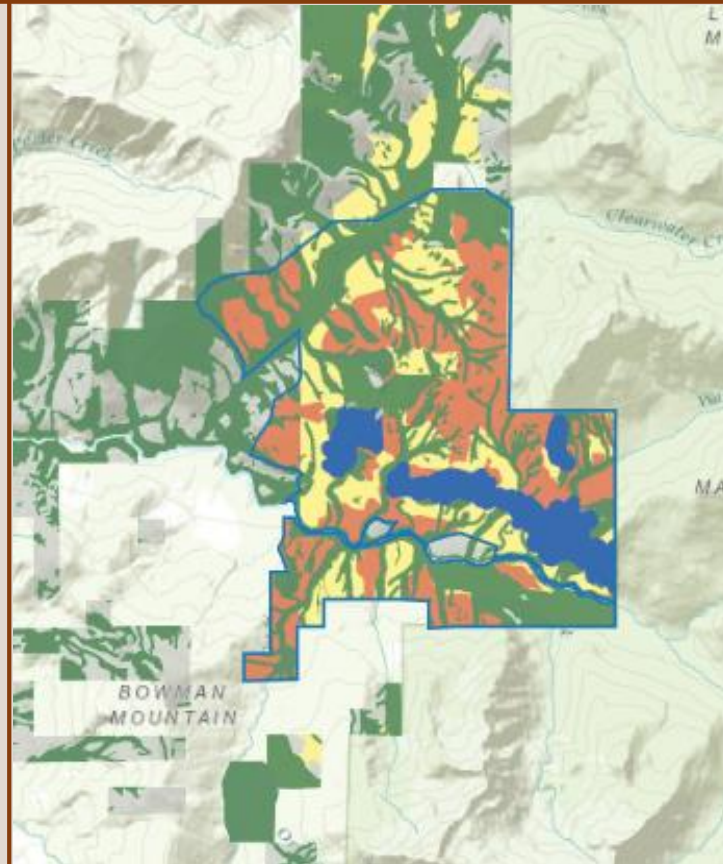


MARBLED MURRELET MANAGEMENT AREAS

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's, 78,000 acres



Components by Alternative

	A	B	C	D	E	F
Occupied sites	✓	✓	✓	✓	✓	✓
Occupied site buffers	✓		✓	✓	✓	✓
Habitat identified under interim strategy	✓					
Marbled murrelet management areas						✓
Emphasis areas			✓		✓	
Special habitat areas			✓	✓	✓	
High quality P-stage habitat ($\geq .47$)			✓		✓	
Low quality NSO Habitat						✓



Acres by alternative

Acres of Long-term Forest Cover (LTFC)

A B C D E F

Existing conservation that may provides benefits to marbled murrelets	583,000	583,000	583,000	583,000	583,000	583,000
Marbled murrelet specific conservation	37,000	10,000	53,000	51,000	57,000	151,000
Total approximate acres	620,000	593,000	636,000	634,000	640,000	734,000



Alternatives
A-F

Why were these
combinations
chosen?



Components by Alternative

A

Occupied sites	✓
Occupied site buffers	✓
Habitat identified under interim strategy	✓
Marbled murrelet management areas	
Emphasis areas	
Special habitat areas	
High quality P-stage habitat ($\geq .47$)	
Low quality NSO Habitat	

Continues DNR operations as authorized under interim strategy of the 1997 HCP

“No Action Alternative”



Components by Alternative

B

Occupied sites	✓
Occupied site buffers	
Habitat identified under interim strategy	
Marbled murrelet management areas	
Emphasis areas	
Special habitat areas	
High quality P-stage habitat ($\geq .47$)	
Low quality NSO Habitat	

Protects known locations,
minimum requirement
under HCP interpretation



Components by Alternative

C

Occupied sites	✓
Occupied site buffers	✓
Habitat identified under interim strategy	
Marbled murrelet management areas	
Emphasis areas	✓
Special habitat areas	✓
High quality P-stage habitat ($\geq .47$)	✓
Low quality NSO Habitat	

Designed to conserve large blocks of current and future habitat, with 7 EAs and 20 SHAs, in a mosaic of working forests

Components by Alternative

D

Occupied sites	✓
Occupied site buffers	✓
Habitat identified under interim strategy	
Marbled murrelet management areas	
Emphasis areas	
Special habitat areas	✓
High quality P-stage habitat ($\geq .47$)	
Low quality NSO Habitat	

Concentrates conservation around 32 SHAs, designed to increase productivity of existing occupied sites by reducing edge and fragmentation effects

Components by Alternative

E

Occupied sites	✓
Occupied site buffers	✓
Habitat identified under interim strategy	
Marbled murrelet management areas	
Emphasis areas	✓
Special habitat areas	✓
High quality P-stage habitat ($\geq .47$)	✓
Low quality NSO Habitat	

Combines the conservation approaches of Alternatives C and D

Components by Alternative

F

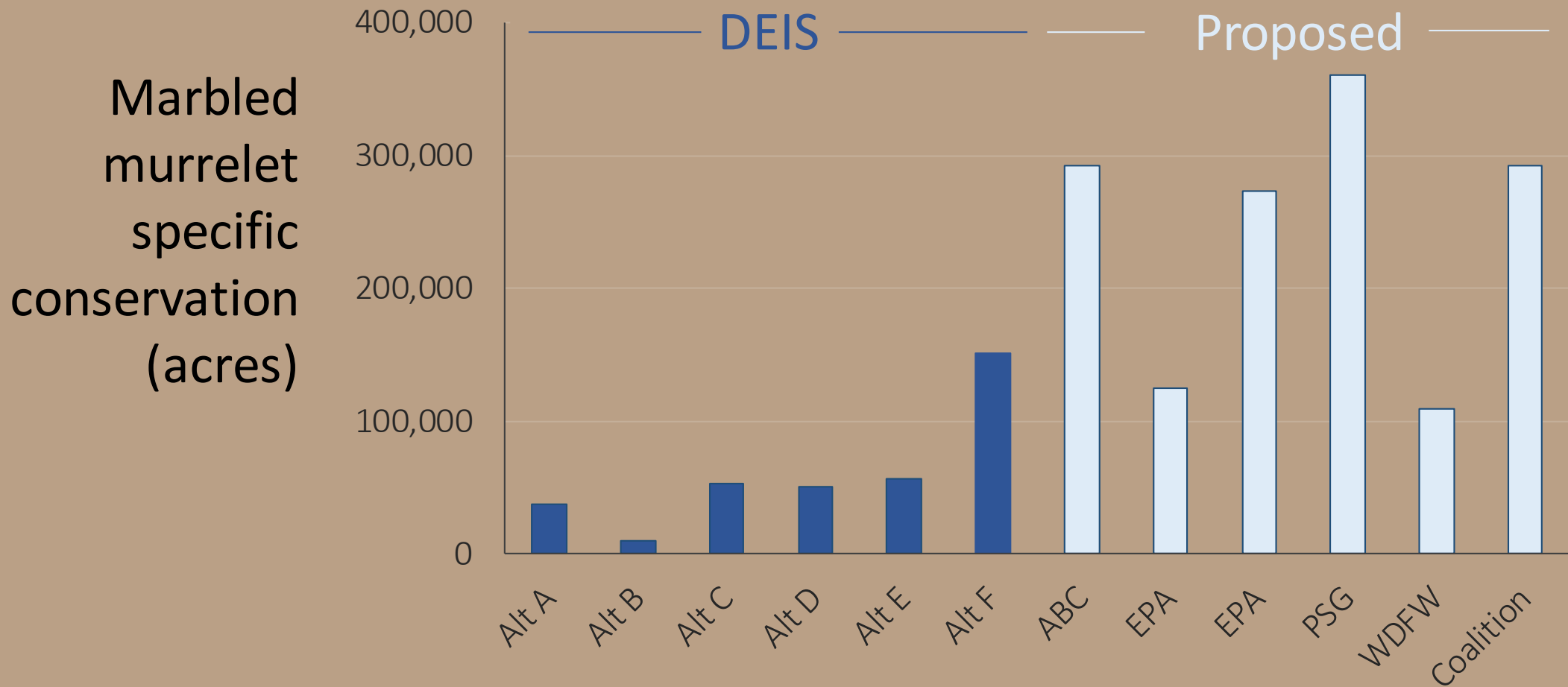
Occupied sites	✓
Occupied site buffers	✓
Habitat identified under interim strategy	
Marbled murrelet management areas	✓
Emphasis areas	
Special habitat areas	
High quality P-stage habitat ($\geq .47$)	
Low quality NSO Habitat	✓

Implements recommendations from the Science Team Report with the addition of two other MMMAs.



DEIS vs Proposed Alternatives

The six proposed alternatives were received as comments during the DEIS public comment period.





Part II Arrearage

Outline

- Definition
- Causes
- Alternatives



Arrearage

The difference between the sustainable harvest level and the amount actually harvested, within a planning decade.

Volume planned

– Volume sold

Arrearage



Arrearage

Arrearage for the 2005-2014
planning decade was 462 mmbf.

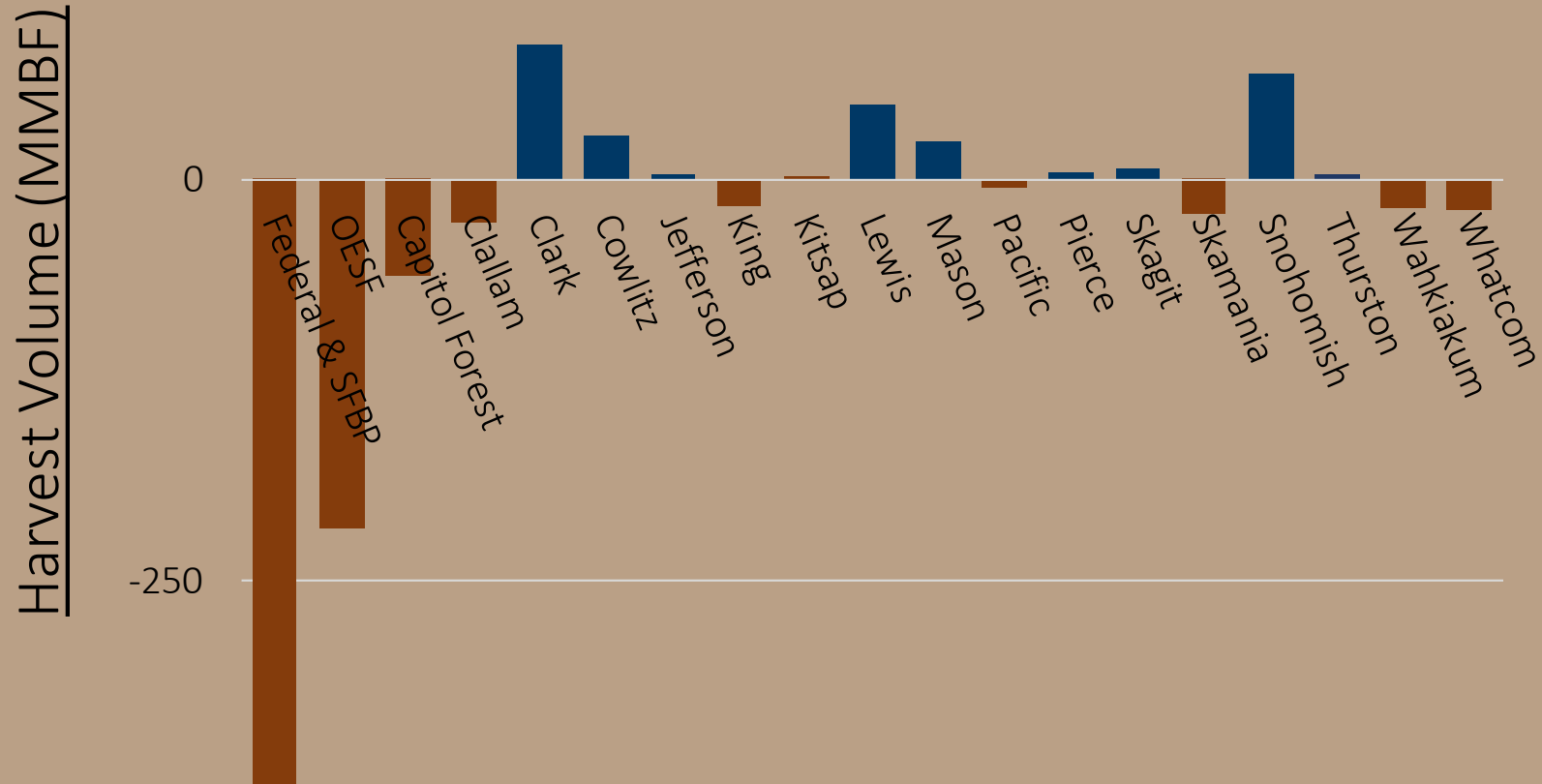
$$\begin{array}{r} 5,500 \text{ mmbf} \\ - 5,038 \text{ mmbf} \\ \hline 462 \text{ mmbf} \end{array}$$



Arrearage

Sustainable Harvest Units

When only the SHUs
in arrears are
considered, the deficit
becomes 702 mmbf



Arrearage

Causes

- Land transactions
- Riparian areas
- Owl management areas
- Marbled murrelets
- Uncertainties



Arrearage

In the 2004 calculation, some trust lands were placed in a harvest deferral status in anticipation of transferring them out of trust status.

The amount of transfers greatly exceeded expectations



Deferred and non-deferred TLTs in the 2004 planning decade

	Trust Land Transfer acres	Trust Land Transfer volume (mmbf)
Deferred	17,900	353
Not Deferred	15,800	<u>302</u>

The department disposed of **635 mmbf** more than it acquired

*TLTs represent 82% of the disposed timber volume

2004 Planning Decade Riparian Performance

Projected riparian harvest: **394** mmbf *(7% of volume)*

Actual riparian harvest: **39** mmbf *(1% of volume)*



Underperformance in habitat thinnings in nesting, roosting, and foraging areas and OESF Spotted Owl Management Units.



It was assumed a long-term conservation strategy would be completed during the planning decade.

Instead, an additional 98,000 acres were held in long- and short-term deferrals.

Uncertainties:

- Great Coastal Gale of 2007
- Great Recession from 2007 to 2009
- Operational unknowns

Arrearage

Arrearage Options

- 702 mmbf / 5 years
- 462 mmbf / 10 years
- 462 mmbf / 1 year
- Included into inventory





Part III

Riparian Harvest

Outline

- Context
- Causes
- Alternatives



Riparian Thinning

Two Habitat Conservation Plan Strategies:

- Riparian Forest Restoration Strategy
- Olympic Experimental State Forest



Riparian Thinning

In the 2004 planning decade, riparian and wetland management zones of state trust lands on the west side was 470,000 acres or 32% of the land base.

Projected harvest was 10% of the area, 394 mmbf.
Only 39 mmbf was harvested.



Riparian Thinning

Causes

- Late implementation of the Riparian Forest Restoration Procedure
- Financial crisis in 2007 -2009



Riparian Thinning

The new riparian options differ only in the amount of thinning that occurs in the five west-side planning units, excluding the OESF HCP Planning Unit.

Option 1

Thin riparian areas up to 10% of the total riparian area in the 5-west side planning units.

Option 2

Thin riparian areas up to 1% of the decade's thinned or harvested non-riparian area within the 5 west-side planning units.





Part IV

Decision Making

How to pick a preferred alternative

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- Meet issuance criteria
- Provide a significant contribution
- Be in the best interest of the trust

Arrearage Option

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Issuance Criteria

1

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

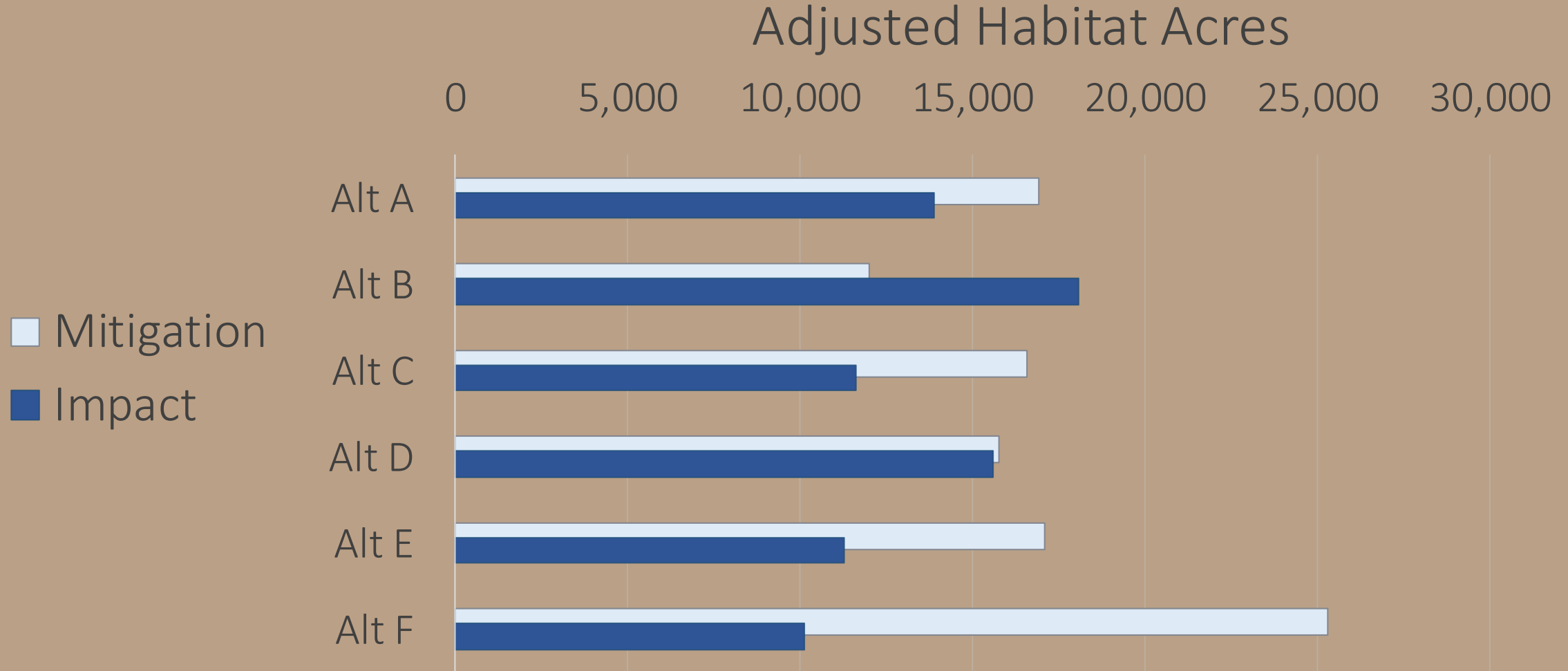
2

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



1

Minimize and mitigate



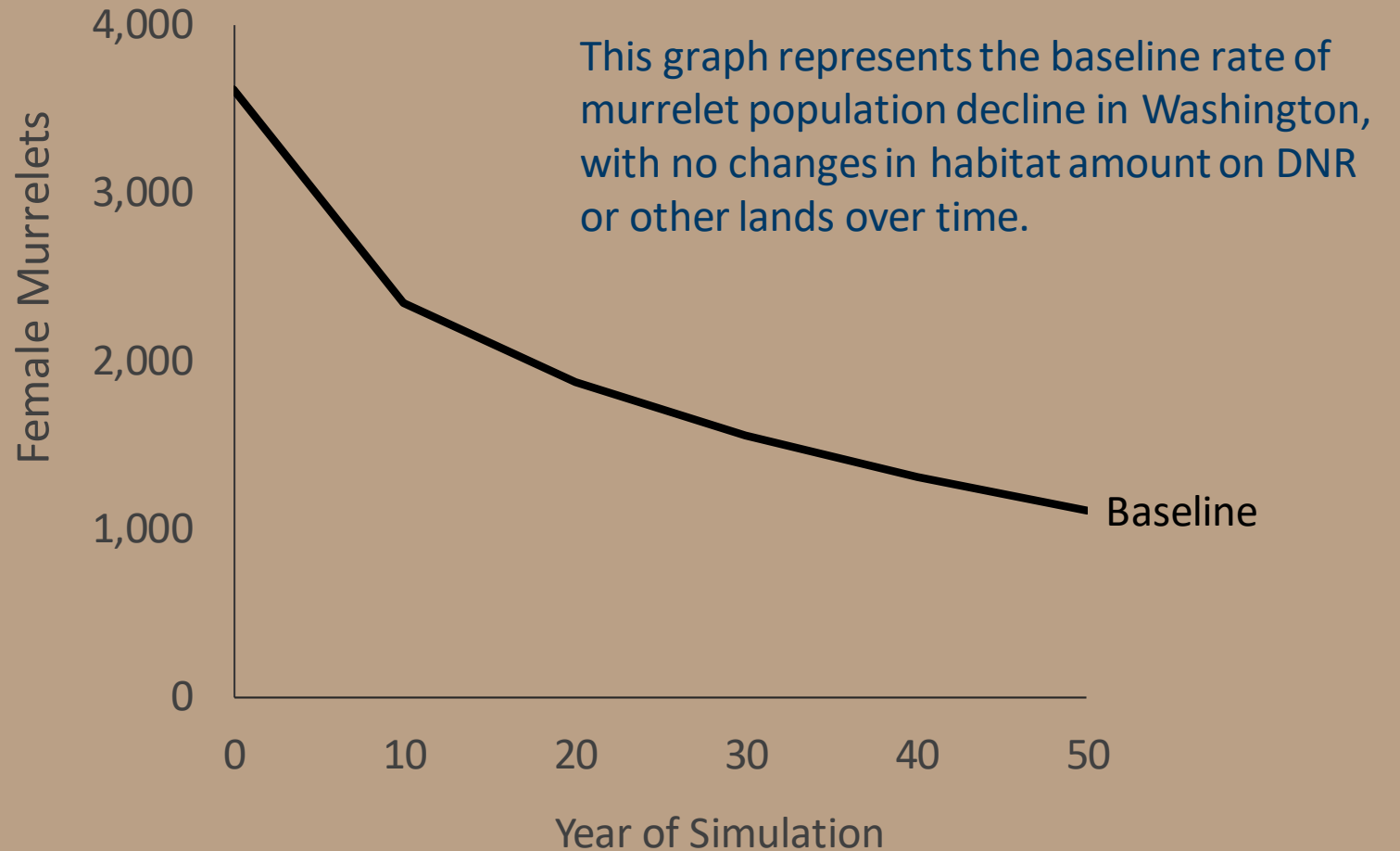
2

Not appreciably reduce

WA - Risk

Population Viability Analyses

- Frequently used under ESA to evaluate proposed activities
- Well-suited for comparing varying management alternatives
- Dr. Peery's model provides a robust analysis for assessing proposed management impacts

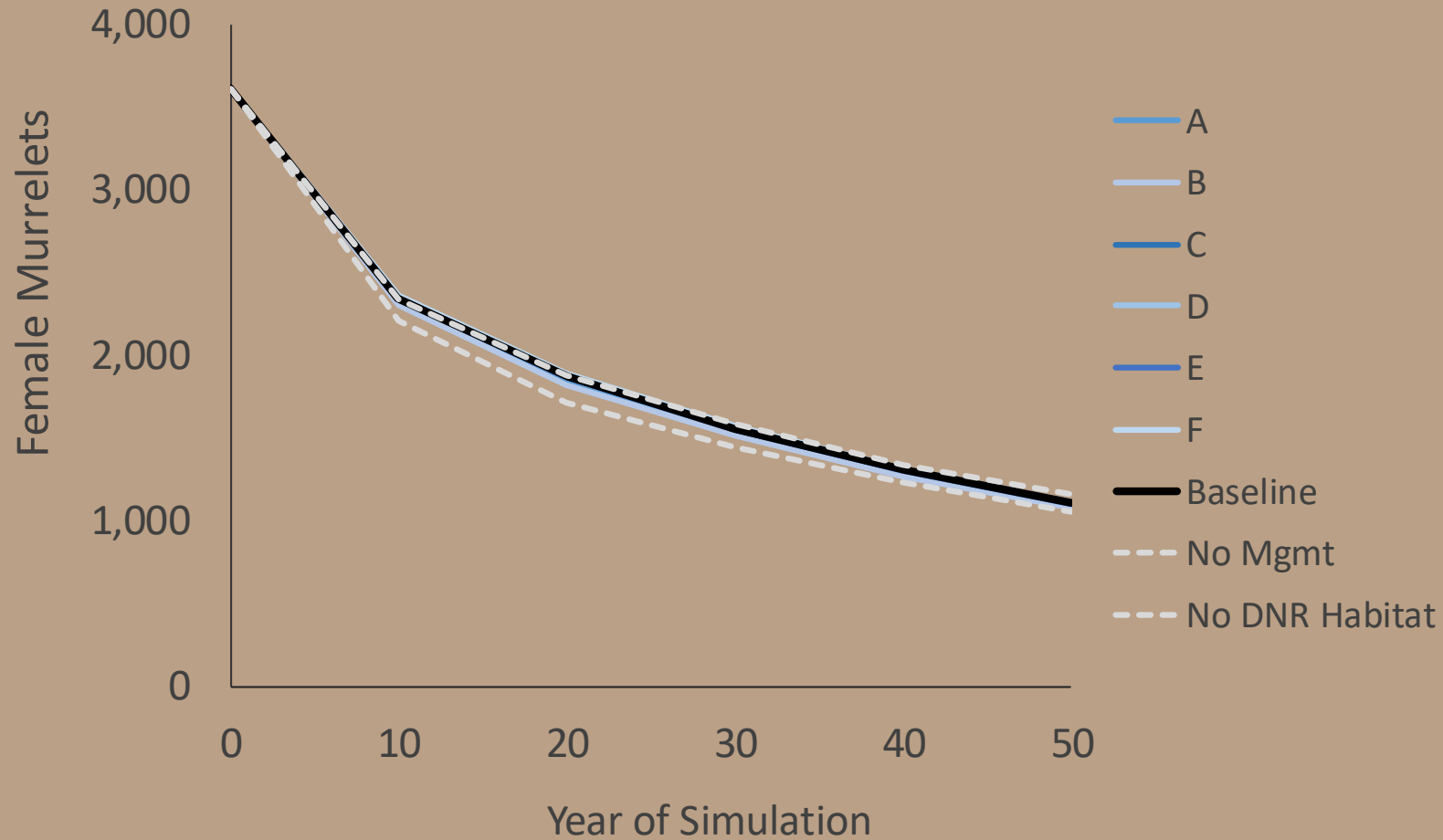


2

Not appreciably reduce

Alternative B deviates from Baseline more than others – therefore it presents most risk to the USFWS’s analysis.

WA - Risk

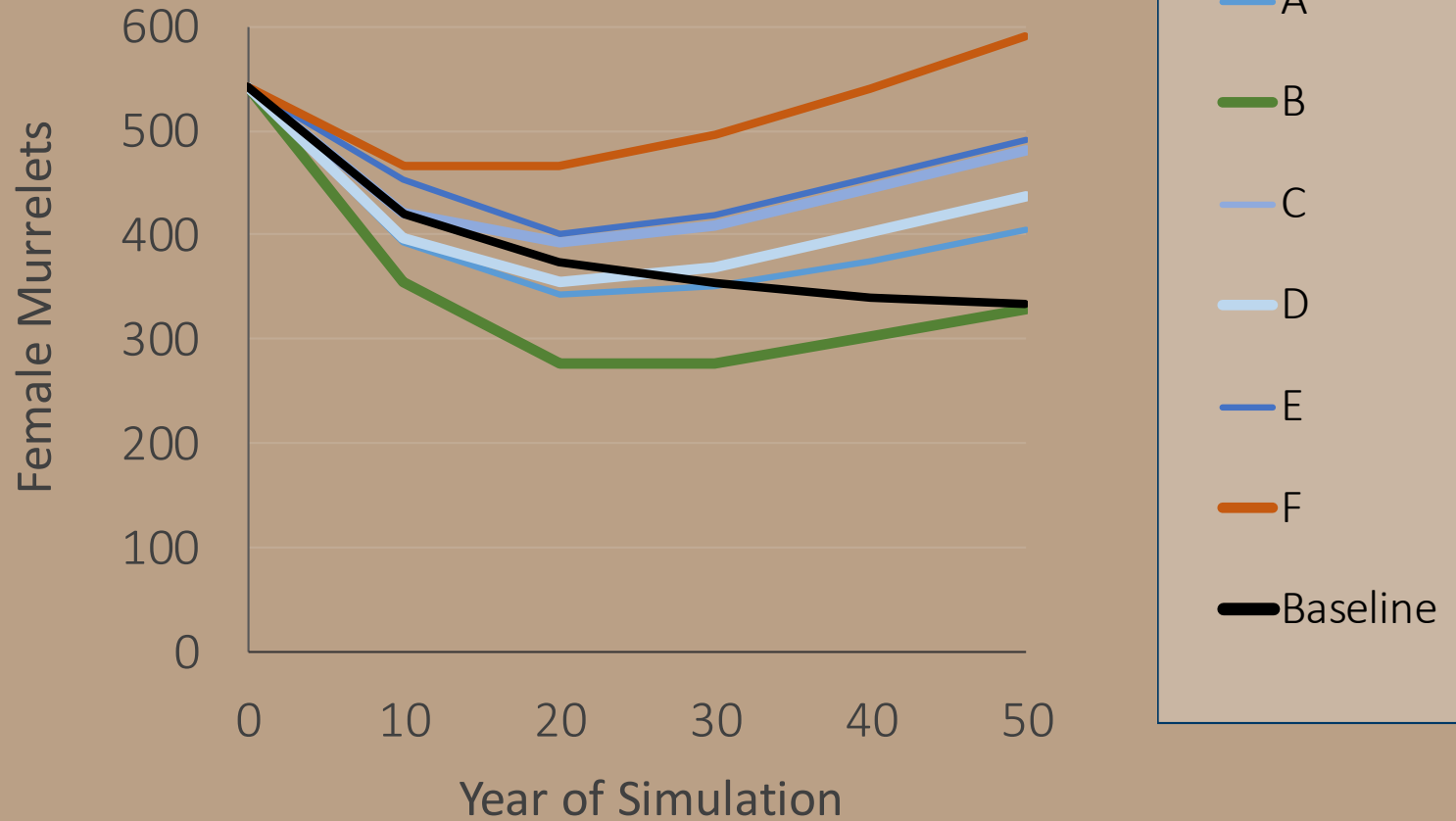


2

Not appreciably reduce

If survival rates improve, then all alternatives except B contribute to recovery

DNR - Enhancement



How to pick a preferred alternative

Marbled Murrelet Option

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Arrearage Option

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Riparian Option

- Be in the best interest of the trust



Significant Contribution

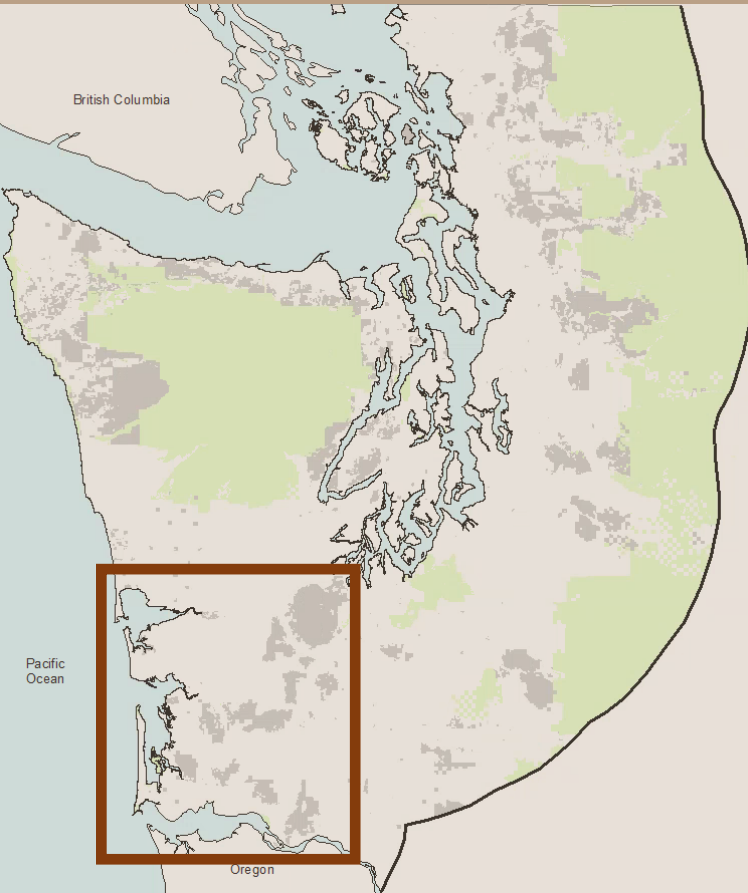
This process should result in a comprehensive, detailed landscape-level plan that would help to meet the recovery objectives of the U.S. Fish and Wildlife Service, contribute to the conservation efforts of the President's Northwest Forest Plan, and make a significant contribution to maintaining and protecting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

DNR 1997 Habitat Conservation Plan, page IV.44



Significant Contribution

■ DNR land ■ murrelet conservation



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How do we decide what is in the best interest of the trusts?

1. Generate revenue and other benefits for each trust, in perpetuity
2. Preserve the corpus of the trust
3. Exercise reasonable care and skill
4. Act prudently to reduce the risk of loss for the trusts
5. Maintain undivided loyalty to beneficiaries
6. Act impartially with respect to current and future beneficiaries



How do we decide what is in the best interest of the trusts?

1. Generate revenue and other benefits for each trust, in perpetuity
 - Primary purpose of the trusts
 - Managed land has the primary purpose of generating revenue in the short and long-term

Possible Metrics

Net Present Value – in the planning decade and over 10 decades



How do we decide what is in the best interest of the trusts?

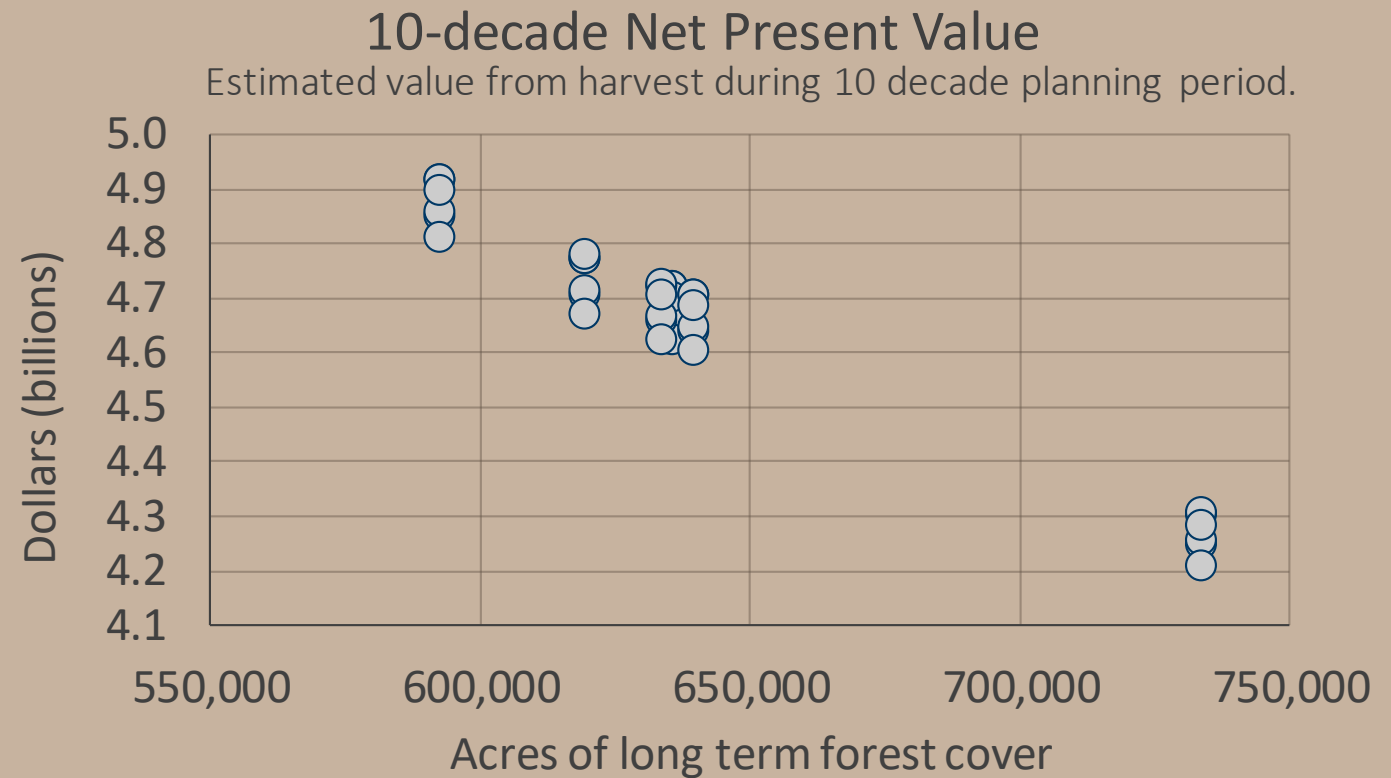
1. Generate revenue and other benefits for each trust, in perpetuity

Possible Metrics - example

Financial analysis

Each circle represents one combination of murrelet, arrearage, and riparian options.

A thorough financial analysis, including this graph in greater detail, will be presented in an upcoming presentation.



How do we decide what is in the best interest of the trusts?

2. Preserve the corpus of the trust

- Maintain the revenue generating ability of lands while safeguarding the ability to adapt to new revenue opportunities in the future.

Possible Metrics

Amount of land available for production



How do we decide what is in the best interest of the trusts?

2. Preserve the corpus of the trust

Possible Metric - example

Area where harvest may occur by Sustainable Harvest Calculation alternatives

SHC Alternative	Lands where harvest may occur
Alternative 1 (marbled murrelet- Alt A; arrearage - none; riparian – 10%)	708,000 acres
Alternative 2 (marbled murrelet- Alt B; arrearage – 702mmbf/5 yrs; riparian – 10%)	766,000 acres
Alternative 3 (marbled murrelet- Alt D; arrearage – 462mmbf/10 yrs; riparian – 1%)	735,000 acres
Alternative 4 (marbled murrelet- Alt E; arrearage – 462mmbf/1 yr; riparian – 1%)	734,000 acres
Alternative 5 (marbled murrelet- Alt F; arrearage - included; riparian – 1%)	650,000 acres

How do we decide what is in the best interest of the trusts?

3. Exercise reasonable care and skill

- It is incumbent that the board takes the time to understand the materials presented, probe the issues that raise questions for them and arrive at their own decision of what is in the best interest of the trust.

Information to consider

Thoroughness and sufficiency of information provided by staff and technical experts

How do we decide what is in the best interest of the trusts?

4. Act prudently to reduce the risk of loss for the trusts
 - The alternative must be practical in its implementation and provide certainty, when certainty is possible.

Information to consider

Complexity of the strategy and adequacy of meeting objectives



How do we decide what is in the best interest of the trusts?

5. Maintain undivided loyalty to beneficiaries

- The interests of the beneficiaries are paramount
- Ensure economic value and productivity of the trust
- While each trust does not need to benefit equally, the final decision must be in the best interest of each beneficiary.

Possible Metrics

Comparison of trust performance under each alternative, consider beneficiaries

How do we decide what is in the best interest of the trusts?

6. Act impartially with respect to current and future beneficiaries
 - Consideration of economic value to current beneficiaries as well as the preservation of the trust for future beneficiaries.

Possible Metrics

Harvest and revenue flow over time by trust, 10-decade net present value

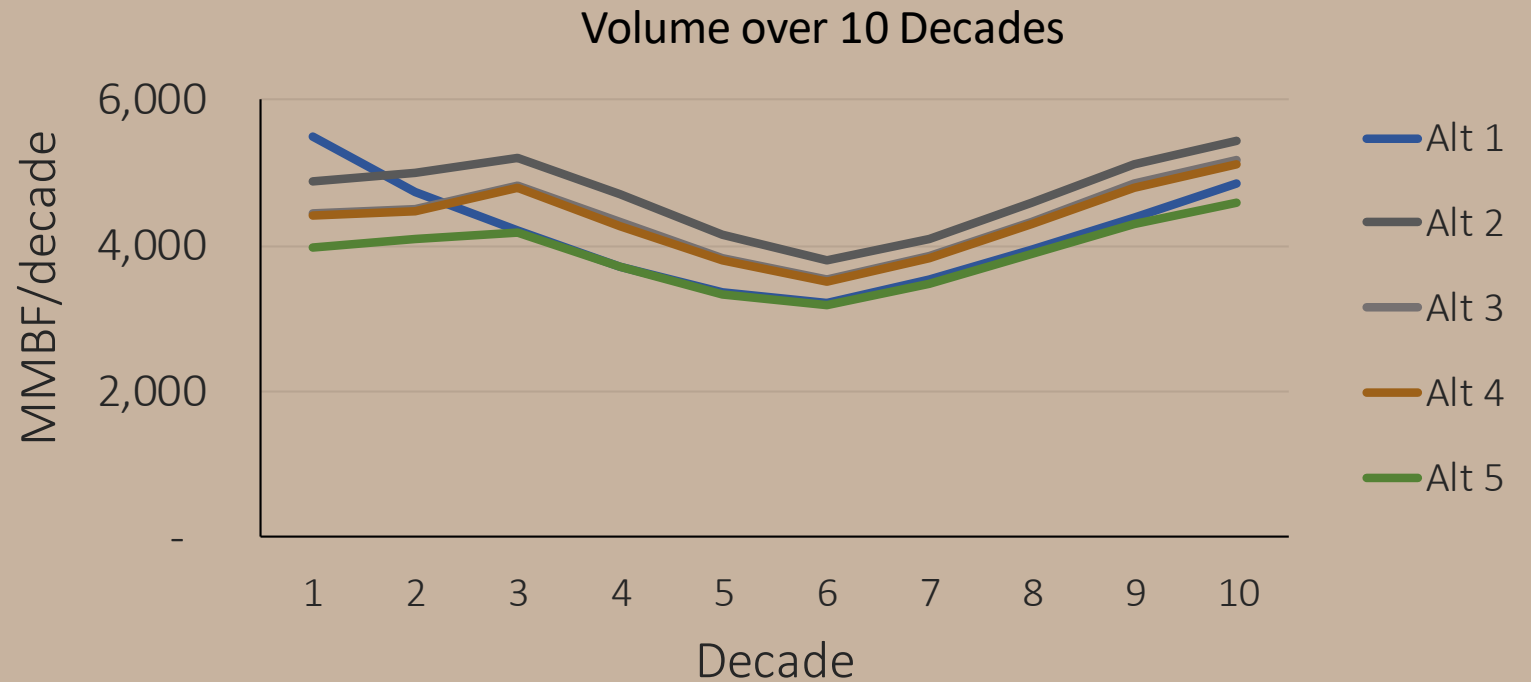


How do we decide what is in the best interest of the trusts?

6. Act impartially with respect to current and future beneficiaries

Possible Metric - example

Harvest volume for each Sustainable Harvest Calculation alternative over 10 decades



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