WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Marbled Murrelet Long-Term Conservation Strategy

A report to the Board of Natural Resources

presented by

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Outline

- Bookend Analysis
- Other Analysis

Trust Mandate

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.

Bookends

Remember

"Essentially, **all models are wrong**, but **some are useful**."*

Bookends

The term "bookends" refers to two additional hypothetical scenarios run through Dr. Zach Peery's murrelet population model, including:

1. No harvest of habitat through the planning period
2. Harvest of all habitat through the planning period

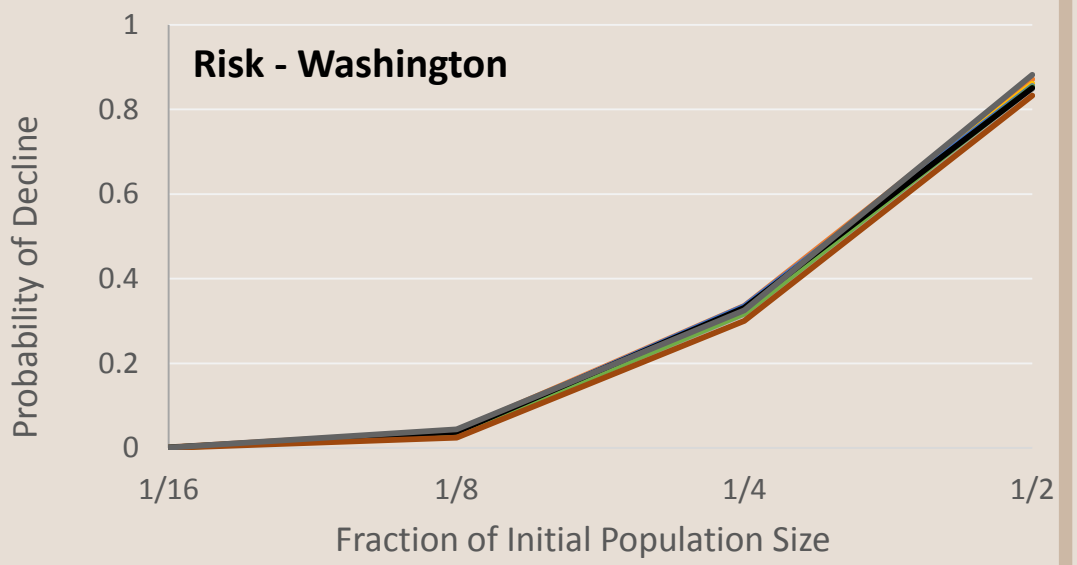
Purpose

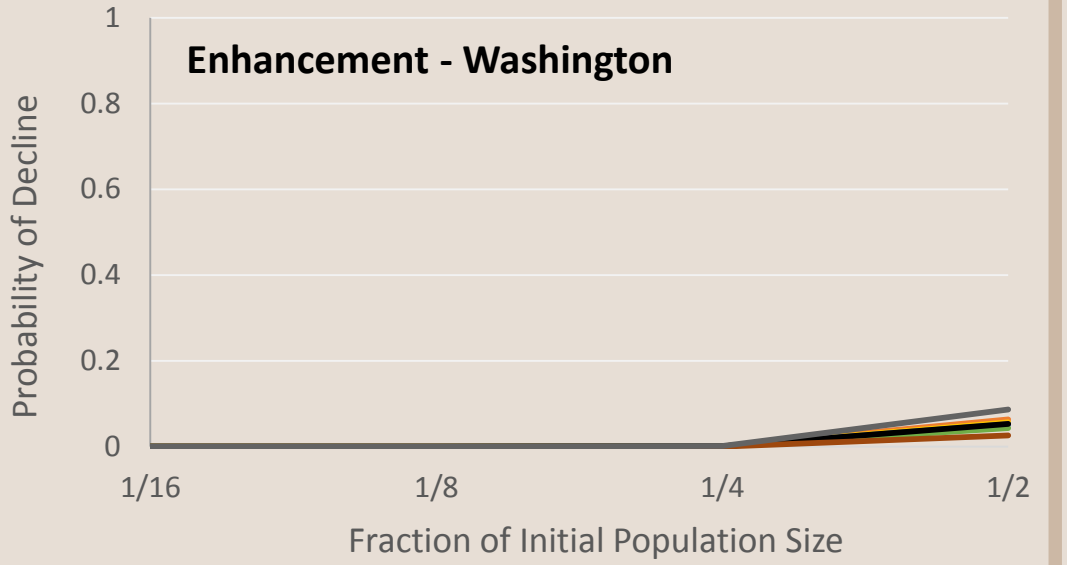
The bookends help to portray the outermost boundaries of the model's outputs for the murrelet population. These "bookend" lines are outside the range of reasonable alternatives.

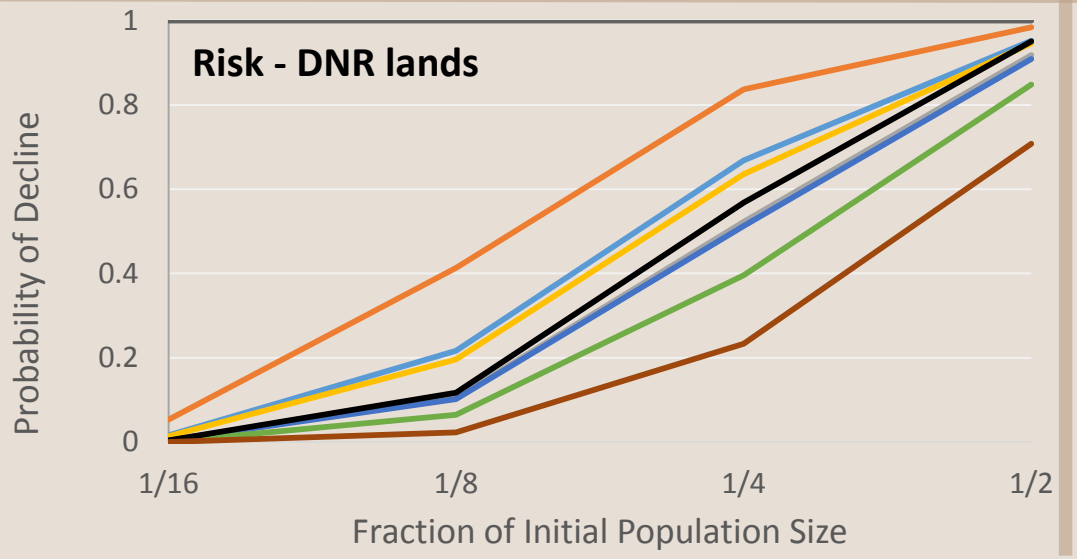
* Box, George E. P.; Norman R. Draper (1987). Empirical **Model**-Building and Response Surfaces, p. 424, Wiley.

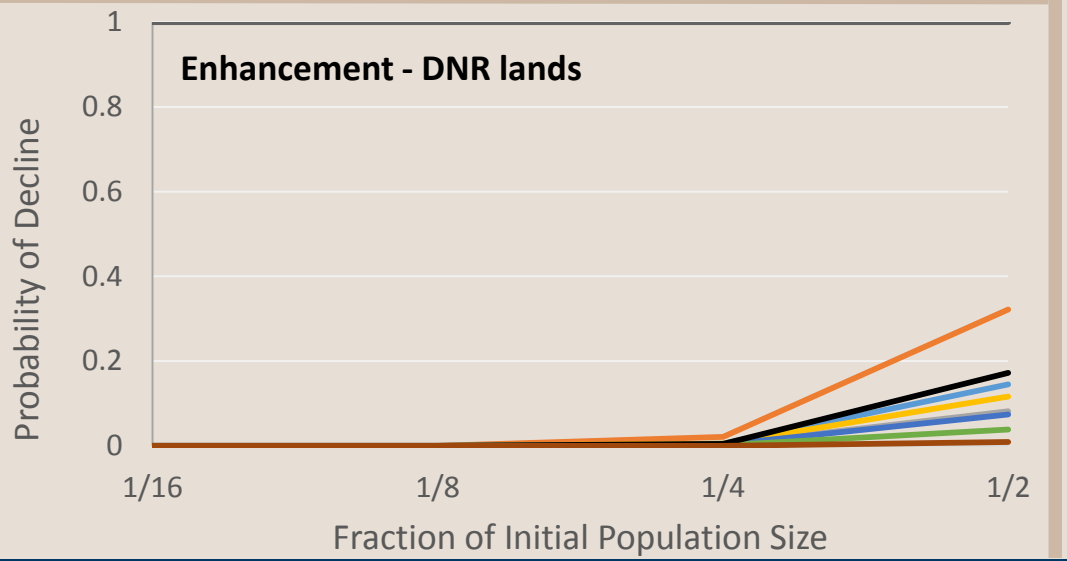
Bookends

Quasi-extinction Probabilities



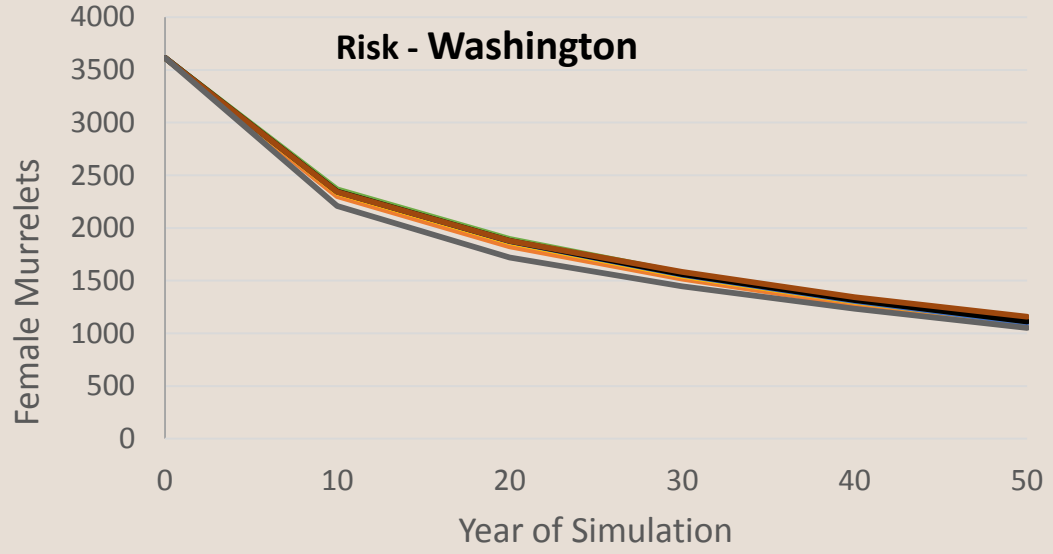


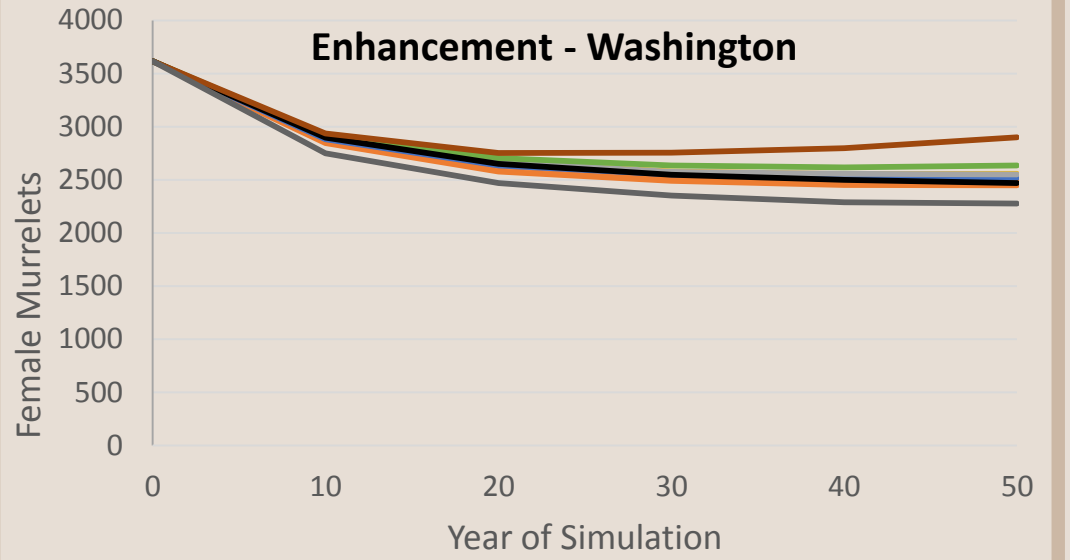


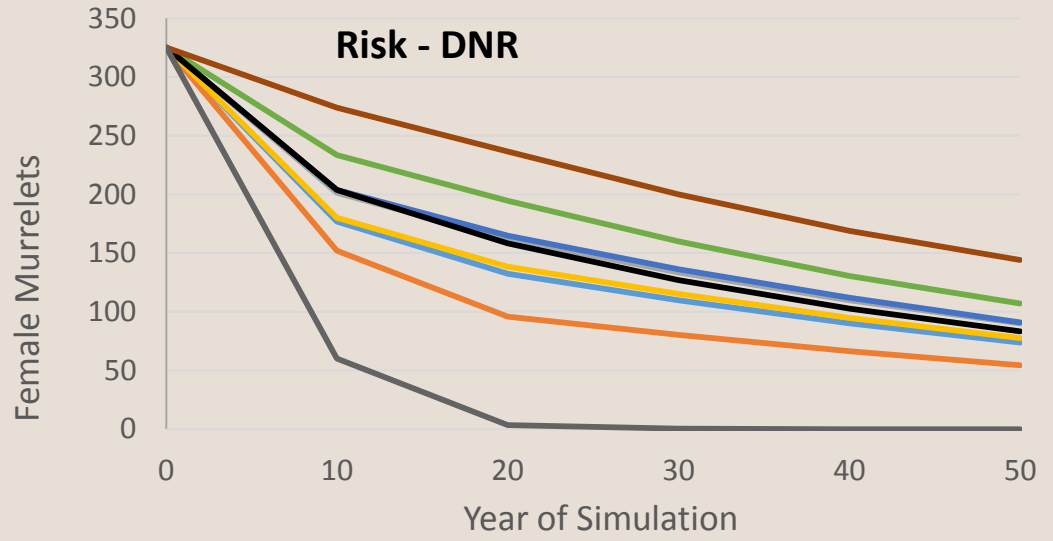


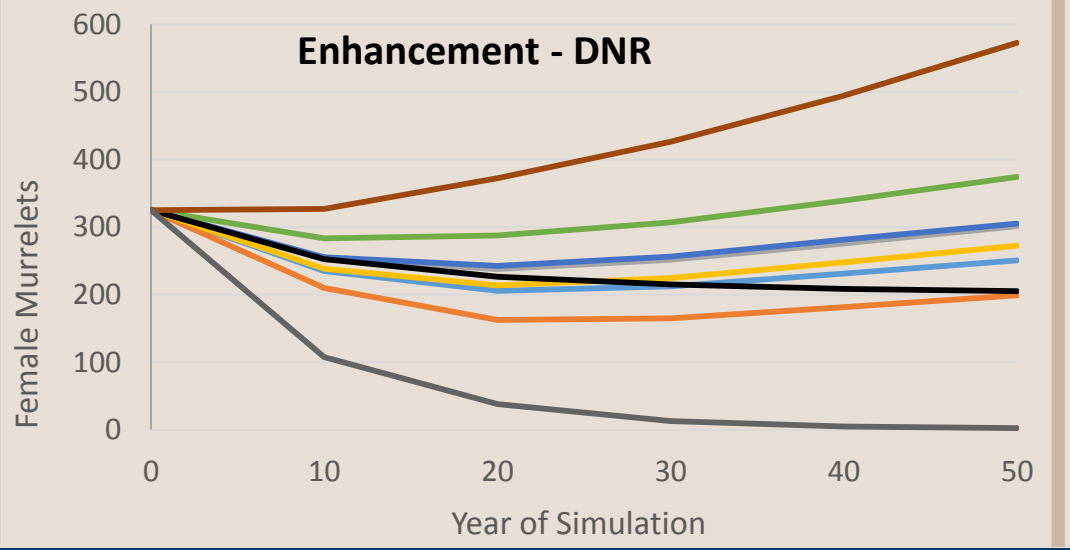
Bookends

Projected mean population sizes at each 10-year interval









Other Analysis

Other Analysis

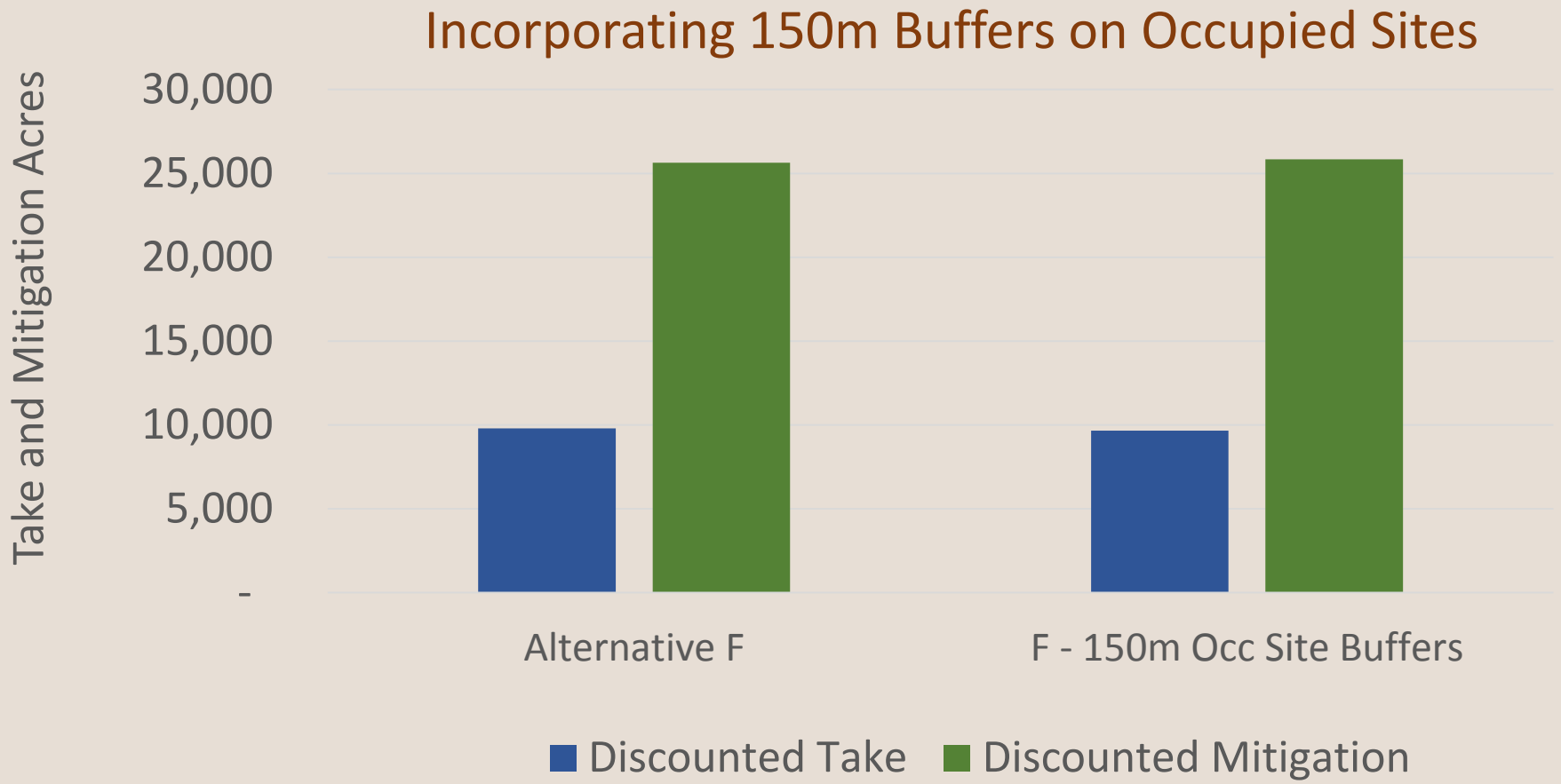
At the November 3, 2015 meeting, the Board requested that staff analyze the following:

1. Exclude high quality NSO habitat from alternative B.

2. Incorporate 150 meter buffers on occupied sites in alternative F.

Other Analysis - Alternative B

Other Analysis - Alternative F



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