

# Marbled Murrelet nest predation risk in managed forest landscapes: dynamic fragmentation effects at multiple scales

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## Abstract.

Fragmentation of forest landscapes is a major driver of biodiversity loss, but the effects of fragmentation on nest predation risk are poorly understood. We examined the effects of fragmentation on nest predation risk for Marbled Murrelets (*Brachyramphus marmoratus*) in managed forest landscapes. We used a multi-scale approach to examine the effects of fragmentation on nest predation risk at the landscape, stand, and nest scales. We found that nest predation risk increased with increasing fragmentation at the landscape scale, but decreased with increasing fragmentation at the stand scale. Nest predation risk was also higher in fragmented landscapes than in unfragmented landscapes. Our results suggest that fragmentation of forest landscapes can increase nest predation risk for Marbled Murrelets, but that the effects of fragmentation are dynamic and vary across scales. This highlights the need for a multi-scale approach to understanding the effects of fragmentation on biodiversity.

*Brachyramphus*

*marmoratus*

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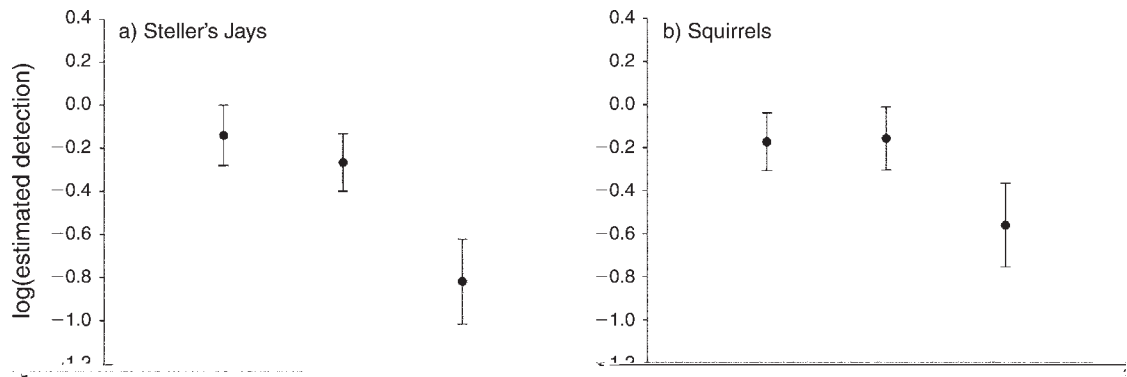
### Comparison to real nests









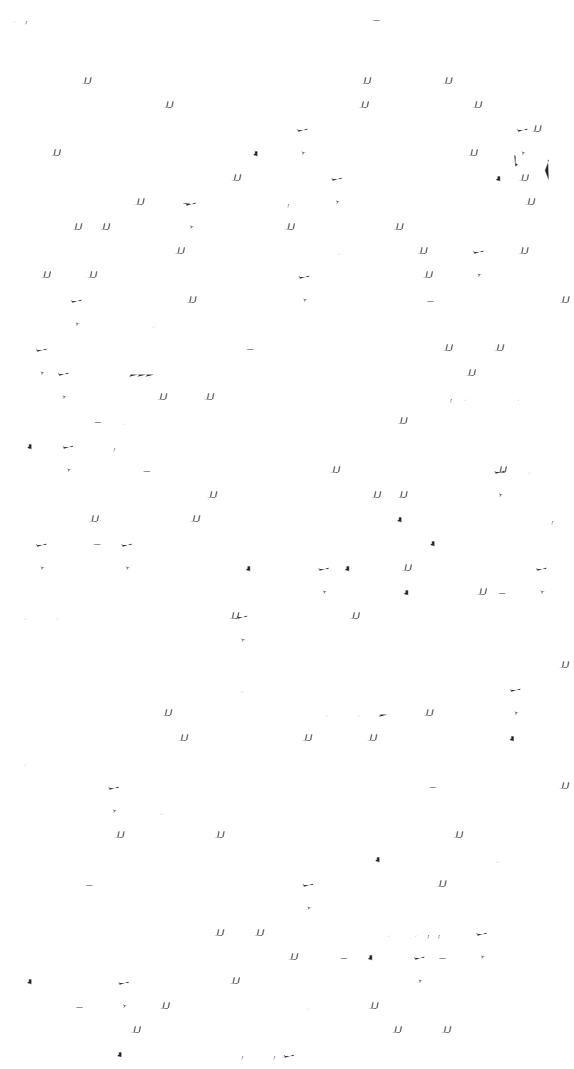


Comparison to real nests

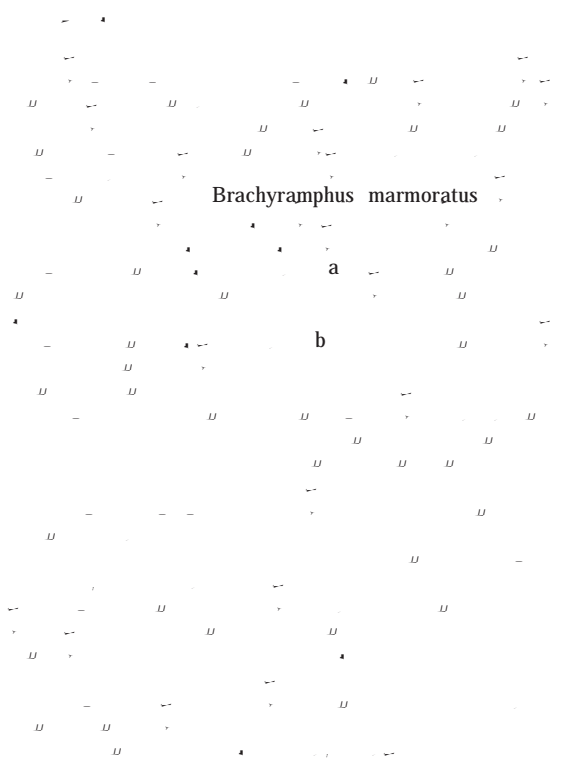
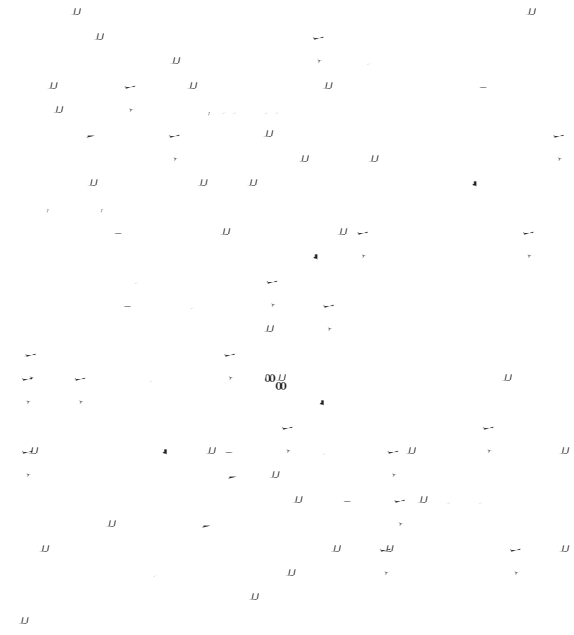


# Conclusions and management recommendations

The study has shown that the most common cause of... [The text is extremely faint and largely illegible throughout the page, appearing to be a standard report structure with multiple paragraphs.] ...



*Brachyramphus marmoratus*



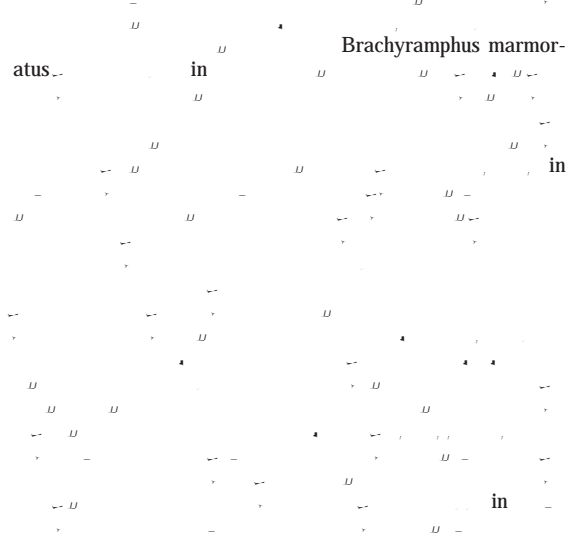
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