

Implications of Landscape Composition and Pattern in Managed Sub-boreal Forests (EP1316): Wildlife Responses to Mountain Pine Beetle and Climate Change



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How to manage landscapes to retain a rich diversity of species and ecological services in the face of mountain pine beetle, salvage harvesting, and climate change is the focus of Doug's research. He is applying a combination of modeling techniques supported by field studies to explore habitat, population, and wildlife community responses now and into the future. The management focus is on retention strategies at the stand and landscape levels.

08/09 Activities

- Landscape/population modeling experiments including logging, natural disturbance, and climate change. 'Mesocarnivores': marten, fisher, lynx, goshawk and their prey are present species focus.
- Using tree squirrels (red squirrels and flying squirrels) as surrogate test species for ecological effects of beetle and climate change.
- Field project examining the fate of harvest block retention patches in SBS, ESSF and ICH zones, first measured in the early 1990s, is being undertaken (Nadina, Skeena-Stikine Districts) .
- Cavity nesting bird responses to partial cutting (Date Creek Silvicultural Systems Project in ICH, Skeena-Stikine District).
- Analysis methods development (Bayesian Networks)

Selected Publications

Steventon, J.D. (*in review*). Arboreal squirrel abundance in response to a gradient of mountain pine beetle attack. *Northwest Science*

Steventon, J.D. and D.K. Daust. 2009. Management strategies for a large-scale mountain pine beetle outbreak: Modelling impacts on American martens. *Forest Ecology and Management* **257**: 1976-1985.

Steventon, J.D. 2008. Conservation of marbled murrelets in British Columbia. Chapter in *Bayesian Networks: A Practical Guide to Applications* (Olivier Pourret (Editor), Patrick Naïm and Bruce Marcot (Co-Editors), J. Wiley and Sons, ISBN: 978-0-470-06030-8, 432 pages. <http://ca.wiley.com/WileyCDA/WileyTitle/productCd-0470060301.html>

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Steventon, J.D., W.A. Bergerud, P.K. Ott. 2005. Analysis of presence/absence data when absence is uncertain (false zeroes): an example for the northern flying squirrel using SAS. Res. Br. B.C. Min. For. Range, Victoria, B.C. Exten. Note 74.

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Burger, A.E., T.A. Chatwin, S.A. Cullen, N.L. Holmes, I.A. Manley, M.H. Mather, B.K. Schroeder, **J.D. Steventon**, J.E. Duncan, P. Arcese, P., and E. Selak. 2004. Relationship between nesting habitat and radar counts of Marbled Murrelets *Brachyramphus marmoratus*. *Marine Ornithology* **32**: 1-11.

Daust, D., A. Fall.,G. Sutherland, **D. Steventon**, and K. Price. 2003. Evaluation of landscape metrics for quantifying fragmentation in the Morice & Lakes IFPA area. Report prepared for Morice and Lakes Innovative Forest Practices Agreement, 38 pp. online at

<http://www.moricelakes-ifpa.com/publications/documents/IFPAMetricReportV3.pdf>

Steventon, J.D., G.D. Sutherland, and P. Arcese. 2003. Long-term risks to Marbled Murrelet (*Brachyramphus marmoratus*) populations: assessing alternative forest management policies in coastal British Columbia. Res. Br., B.C. Min. For., Victoria, B.C. Tech. Rep. 012.

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Pojar, J., N. Diaz, **D. Steventon**, D. Apostol, and K. Mellon. 1994. Biodiversity planning and forest management at the landscape scale. *In Proc. 3rd Habitat Futures Workshop. Expanding horizons of forest ecosystem management.* M.H. Huff, S.E. McDonald, H. Gucinski (tech. coord.). USDA, GTR PNW-GTR-336, USDA Pacific Northwest Station, Portland, OR. pp. 55-70.

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