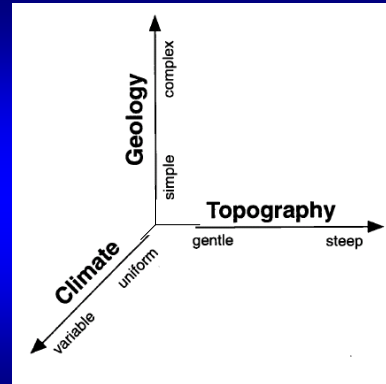




**Process domains: a useful concept for characterizing disturbance and successional trajectories in temperate rain forests.**

Steve Mitchell  
University of British Columbia

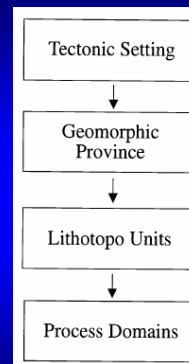


(Montgomery, 1999)



**Outline**

- Process domains - defined
- Mapping domains
- Implications for silviculture



In geomorphic terms, process domains form the lowest level in a hierarchy that scales from regional to local.

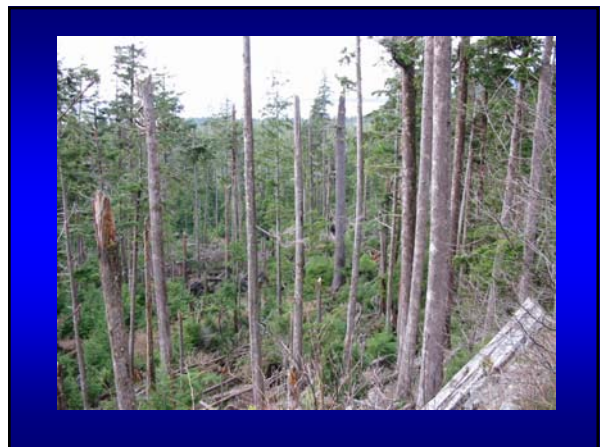
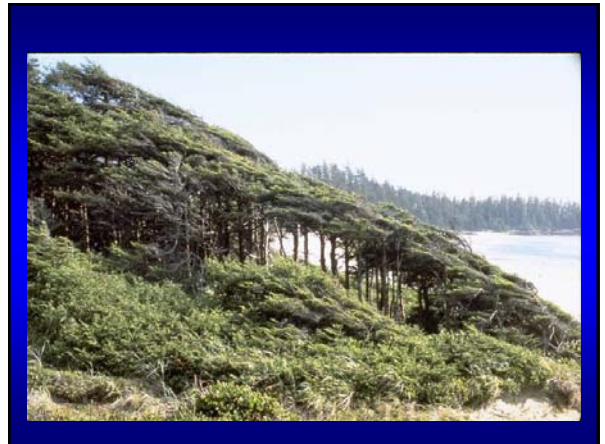
In ecological terms they would occur at the site series (site unit) level.

(Montgomery, 1999)

Process domains are spatially identifiable areas characterized by distinct suites of geomorphic processes...[that] govern habitat attributes and dynamics.

Montgomery, D.R. 1999. Process domains and the river continuum. J. Am. Water Resources Assoc. 35:397-410.







"Successional paludification contrasts with edaphic paludification, where topography and drainage primarily control the extent and rate of paludification... At the landscape scale, the fire regime (frequency and severity) controls paludification and forest productivity through its effect on soil organic layers." Simard et al. Ecol. Appl. 2007

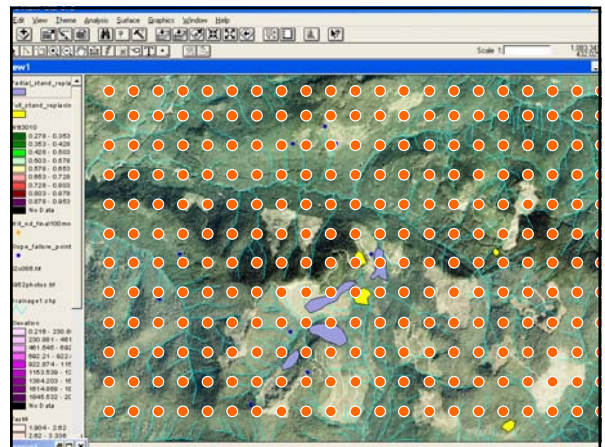
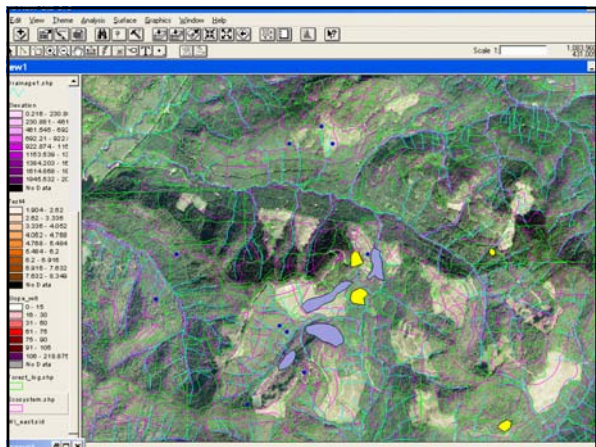
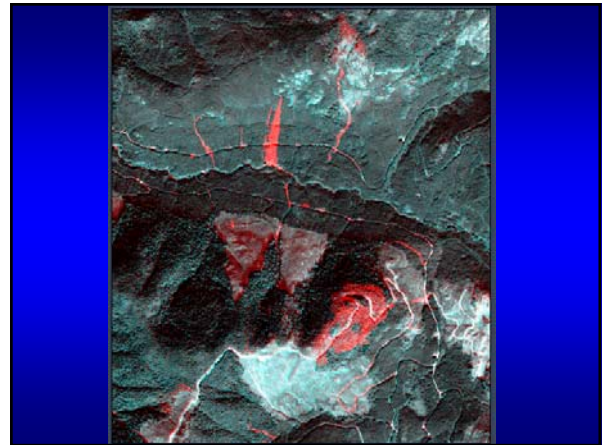
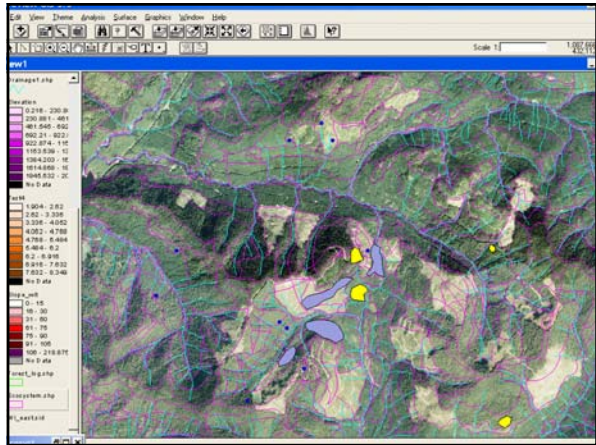
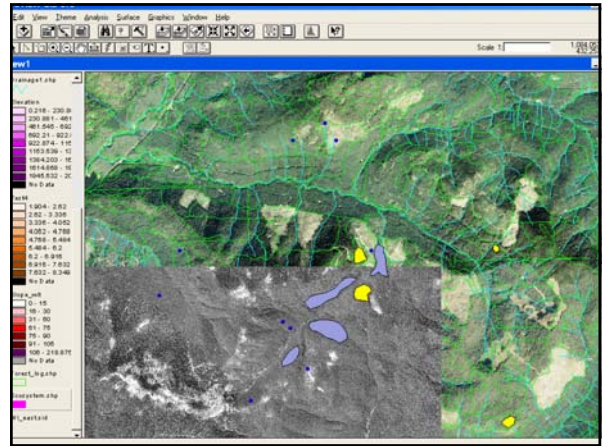


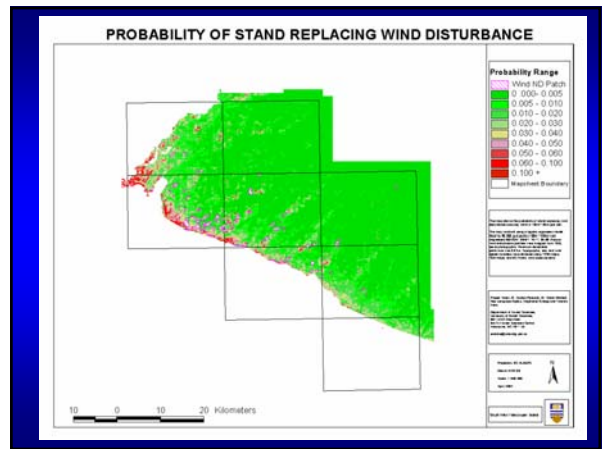
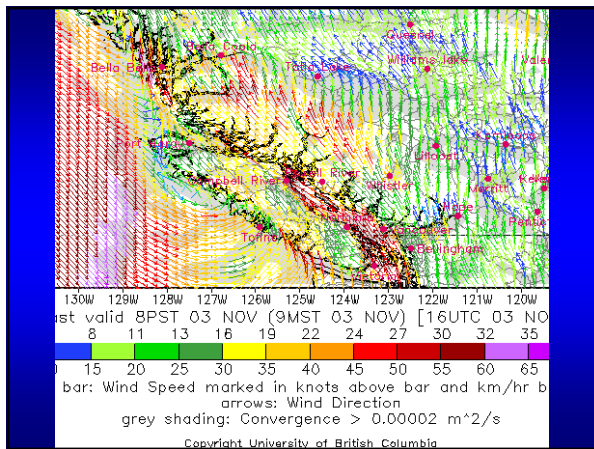
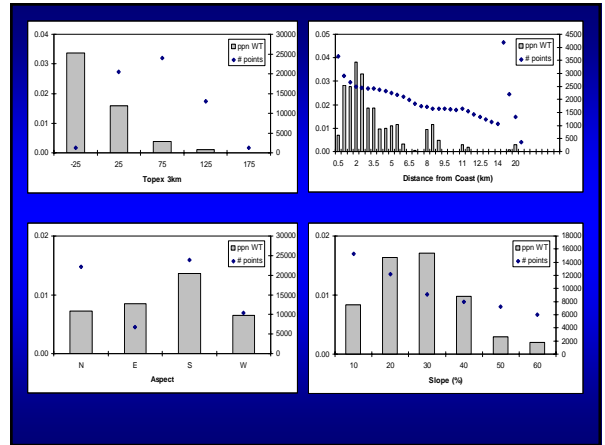
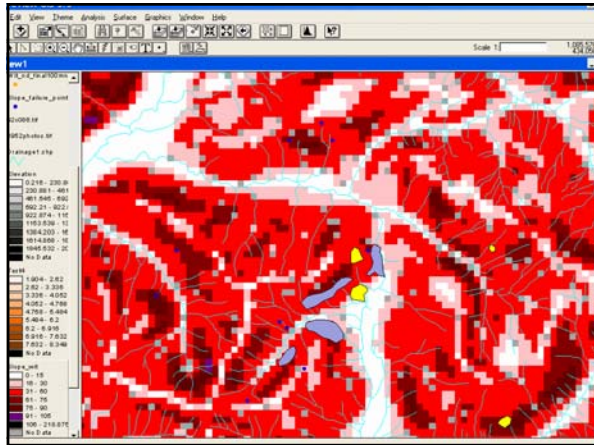
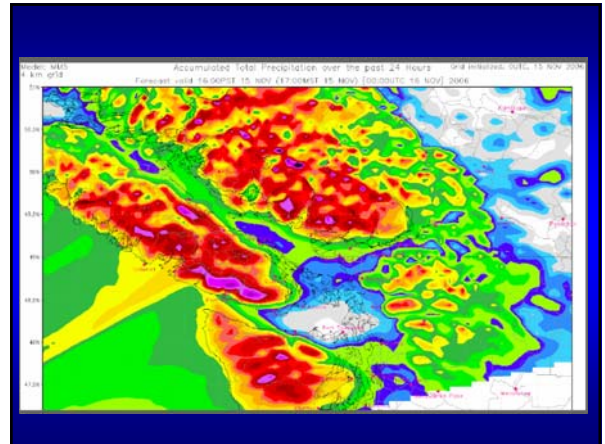
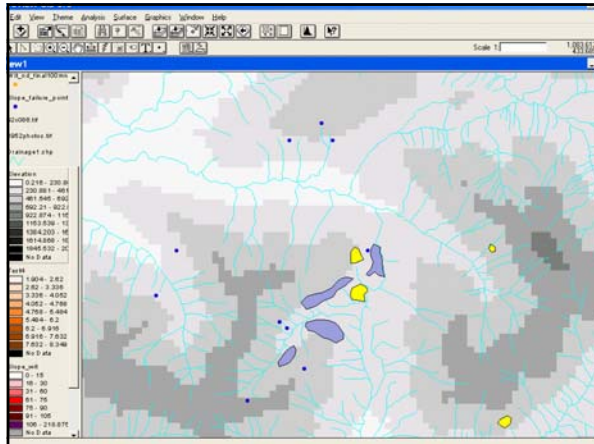
Mapping domains

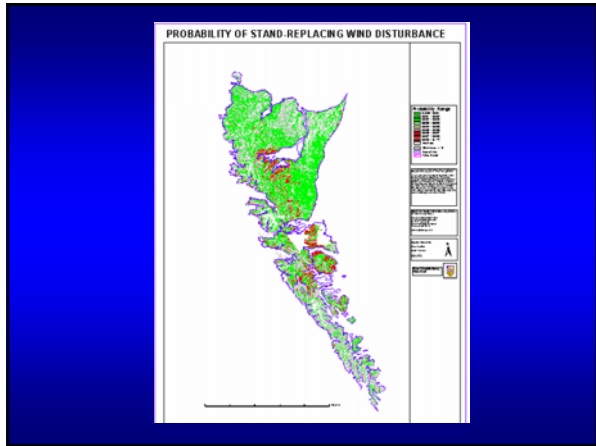


"Windthrow or disturbances that mimic windthrow may be required at intervals of about 200-400 years to maintain soil productive capacity." Borman et al. 1995 J. Ecol.









Implications for silviculture





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## Concluding thoughts:

- The concept of disturbance process domains is a useful way of organizing our understanding of disturbance patterns at the stand and landscape scale.
- We can use this framework to propose and test hypotheses about disturbance processes and successional outcomes, including the effects of climate change.

## Concluding thoughts (cont.)

- GIS and remote sensing techniques offer efficient means of mapping, detecting change, and analyzing the outcomes of management practices in these domains.
- We need to be more realistic and less idealistic about the role of what are sometimes devastating processes in maintaining ecosystem fertility and structure and incorporate this into our silviculture decision-making and public education efforts.