
Friday, September 26, 13:30, Max Bell Auditorium

**Succession Debt: Effects of Logging on Wolf-deer Dynamics
in Coastal British Columbia and Southeast Alaska**

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Logging in the temperate rainforests of coastal British Columbia initiates a pattern of forest succession and road access by humans that has long-term adverse consequences for wolves and their deer prey. We call this "succession debt". Twenty-five to 40 years after clear-cutting, regenerating stands of even-aged conifers grow into a "stem exclusion" stage characterized by a dense canopy and depauperate under-story, which substantially reduces carrying capacity for deer. Once initiated, changes are irreversible and cannot be mitigated by adjustments to future forest management. Moreover, logging roads facilitate access to wolf and deer habitat. Long-term effects include declines in populations of deer and wolves, increased exploitation of deer and wolves by humans, greater probability that wolves will suppress deer numbers, and increased likelihood of conflicts between hunters and wolves for deer. Moreover, island populations in this archipelago are more vulnerable to disturbance from logging and less likely to be readily recolonized. We compare wolf-deer systems from adjacent areas of coastal British Columbia and southeast Alaska. In sparsely populated and nearly pristine coastal northern British Columbia, human-caused mortality of wolves is low, and prey populations are likely at historical levels. In contrast, Prince of Wales Island in southeast Alaska has undergone extensive timber removal. Killing of 30-40% of the wolf population annually is common and we predict substantial declines in deer populations over the next 50 years. Resource managers need to consider long-term consequences of forest management on predator-prey systems and recognize that mitigation of those consequences may not be possible.

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