

# Evaluation of conservation status of native tree species in British Columbia considering both *in situ* and *ex situ* protection

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## Abstract

The conservation of forest genetic resources is essential to maintain the capacity of forest trees and the forest sector to adapt to climate change. In British Columbia, the conservation of forest tree species is primarily achieved through *in situ* conservation in protected areas, complemented by *ex situ* conservation in seed storage, and *inter situ* conservation in research trials. Since the last assessment of the conservation status of BC's tree species, there have been changes including: 1) a considerable increase in protected areas (from 11% to 15%), 2) many revisions to the Biogeoclimatic Ecological Classification (BEC) system (version 4 vs 10), and 3) a major increase in the number of ecological plots with useable data. This analysis was undertaken to update the conservation status for BC's native trees, and to identify priorities for additional *in situ* and *ex situ* conservation. The feasibility of using the Vegetation Resource Inventory dataset was also explored and it was determined to be unsuitable for this purpose. Our gap analysis suggests that 89% of the BEC zones where a species frequently occurs are well protected for the 43 native tree species in the province. When *in situ* and *ex situ* conservation are considered jointly, the conservation status is improved to 91%, but 12 species have conservation shortfalls in one or more biogeoclimatic zones. Needs for additional *ex situ* collections or *in situ* protection are discussed in terms of both BEC zones and individual species. In most cases, we recommend seed collection as the most feasible option to cover gaps in protected area coverage.

**Keywords:** genetic conservation, ecological plot, *in situ*, *ex situ*, gap analysis