

WHITEBARK PINE RESTORATION

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What is whitebark pine?

Whitebark pine grows throughout many of the higher mountain ranges of western Canada and the U.S. It is listed as Endangered under the Species at Risk Act (SARA) and under evaluation for listing in the U.S. under the Endangered Species Act (ESA). Those of us who ski and hike encounter the tree on harsh, high elevation sites as a picturesque survivor—wind-battered, multi-stemmed with shrubby canopies or with twisted trunks.

The pine is a poster child for the unintended consequences of human endeavors. It is being killed by a suite of threats, primarily the fungal disease white pine blister rust, inadvertently introduced to western North America from Europe. White pine blister rust is *the existential threat* to whitebark pine, and in some regions in Canada, up to 90% of living trees are infected. Recently, mountain pine beetle outbreaks also killed many whitebark pines, including many infected by rust.

Why care?

Whitebark pine is ecologically important. The tree exclusively depends on the sharp-billed Clark's nutcracker, to open its cones and disperse its nut-like seeds. Thanks to nutcrackers, the pine colonizes rapidly after fire and over long distances. The rugged whitebarks may shelter less hardy trees, enabling them to become established after fire or on rocky, wind-swept sites. Growing at high elevations and at treeline, whitebarks retain and shade snow, and hold down soil, thus protecting watersheds. Its large, nutritious seeds feed all sorts of wildlife from birds to bears.

The good news is that a small percent of whitebark pines are genetically resistant to blister rust, and these trees are the foundation of a comprehensive restoration program. Resistant trees are being confirmed through a careful screening process—their seeds collected and seedlings grown and planted. Identifying and increasing the frequency of blister rust-resistant traits is the key to the recovery of the species. Planting blister-rust resistant seedlings is the main management strategy to prevent local and regional extirpation of this high elevation forest tree.

Direct human impacts, such as timber harvest, are generally minor compared to the threats described above. Recent court rulings and subsequent publications, however, have highlighted the disparity in how whitebark pine is protected: Lake Louise Ski Area was fined a significant sum following the removal of a small number of trees, whereas outside of the National Parks whitebark pine may be harvested without any repercussions. (Note that many companies are voluntarily supporting recovery).

What conservation actions have been done?

Recovery Accomplishments



Cone Collections

- Cone collections have been on-going for over a decade across the Province;
- In 2018 the largest range-wide collection yet was conducted with over 1.4 million seeds collected from Smithers to Sparwood;
- Cone collections have been funded by the Forest Enhancement Society, Fish and Wildlife Compensation Program, Habitat Conservation Trust Foundation, Columbia Basin Trust, BC Parks, Parks Canada, Teck, New Gold, Environment Canada, and GCTAC; and
- Seed from collections was contributed to white pine blister rust screening programs and to support restoration planting.

Planting

- Whitebark pine has been planted by the Forest Enhancement Society, Fish and Wildlife Compensation Program, Habitat Conservation Trust Foundation, Columbia Basin Trust, BC Parks, Parks Canada, Teck, New Gold, and Environment Canada;
- Over 100,000 seedlings are scheduled for planting in 2021, including many new agencies and companies;
- Panorama, Kicking Horse, Revelstoke, Whitewater, and Red Mountain are scheduled to plant 5,000 seedlings each in 2021.



Rust Surveys and Screening

- The BC Ministry of Forests, Lands, and Natural Resource Operations and Rural Development has established a blister rust screening facility at Kalamalka;
- 291 families have been screened to-date;
- Twelve provenance trials throughout the range;
- Several field-based trials have also been established by Provincial Research Scientists and Pathologists;
- Permanently marked health monitoring transects established across the range of whitebark pine.



Ski Area Certification

- Sorcerer Lodge Certified as first Whitebark Pine Friendly Ski Area in Canada;
- Lake Louise and Castle Mountain are developing applications for certification;
- Ski areas must meet requirements regarding Education, Conservation, and Restoration;
- Many ski areas actively assist with cone collections, rust monitoring, and seedling planting.



Licensee Actions

- **Canfor:**
 - Has developed in-house Special Work Procedures for whitebark pine;
 - Developed detailed in-house pre-harvest surveys of whitebark pine in proposed cutblocks; and
 - Planted whitebark pine in suitable areas.
- **Other Licensees (Bell Pole, Kalesnikoff, Interfor, BCTS, and Forest Carbon Initiative):**
 - Practice retention of mature whitebark pine trees during harvest;
 - Ordered 100,000 Seedlings for planting in 2021.



What conservation actions can be undertaken by industry?

Industry can actively participate in whitebark pine conservation, but the primary restoration approach—seeking genetic resistance to white pine blister rust—is primarily funded and implemented by the BC Ministry of Forest Lands and Natural Resource Operation and Rural Development. To contribute, however, the timber industry must avoid cutting healthy whitebark pine in cut blocks. Some forest companies have already incorporated this protocol into their Forest Stewardship Plans. In addition, after logging, industry can replant cuts with whitebark pine seedlings grown from potentially or known blister rust-resistant seed sources. Mining companies and construction companies involved in infrastructure development have generally been cooperative but should devise and implement whitebark pine mitigation strategies. Finally, many ski areas are in the process of being certified as “whitebark pine friendly”—a program developed by the *Whitebark Pine Ecosystem Foundation* that entails promoting education and conservation of their whitebark pine in all operations. The Whitebark Pine Ecosystem Foundation of Canada and the U.S. (www.whitebarkfound.org and www.whitebarkpine.ca) can provide information on whitebark pine identification, ecology, and restoration plantings.