

Genetic Resource Management

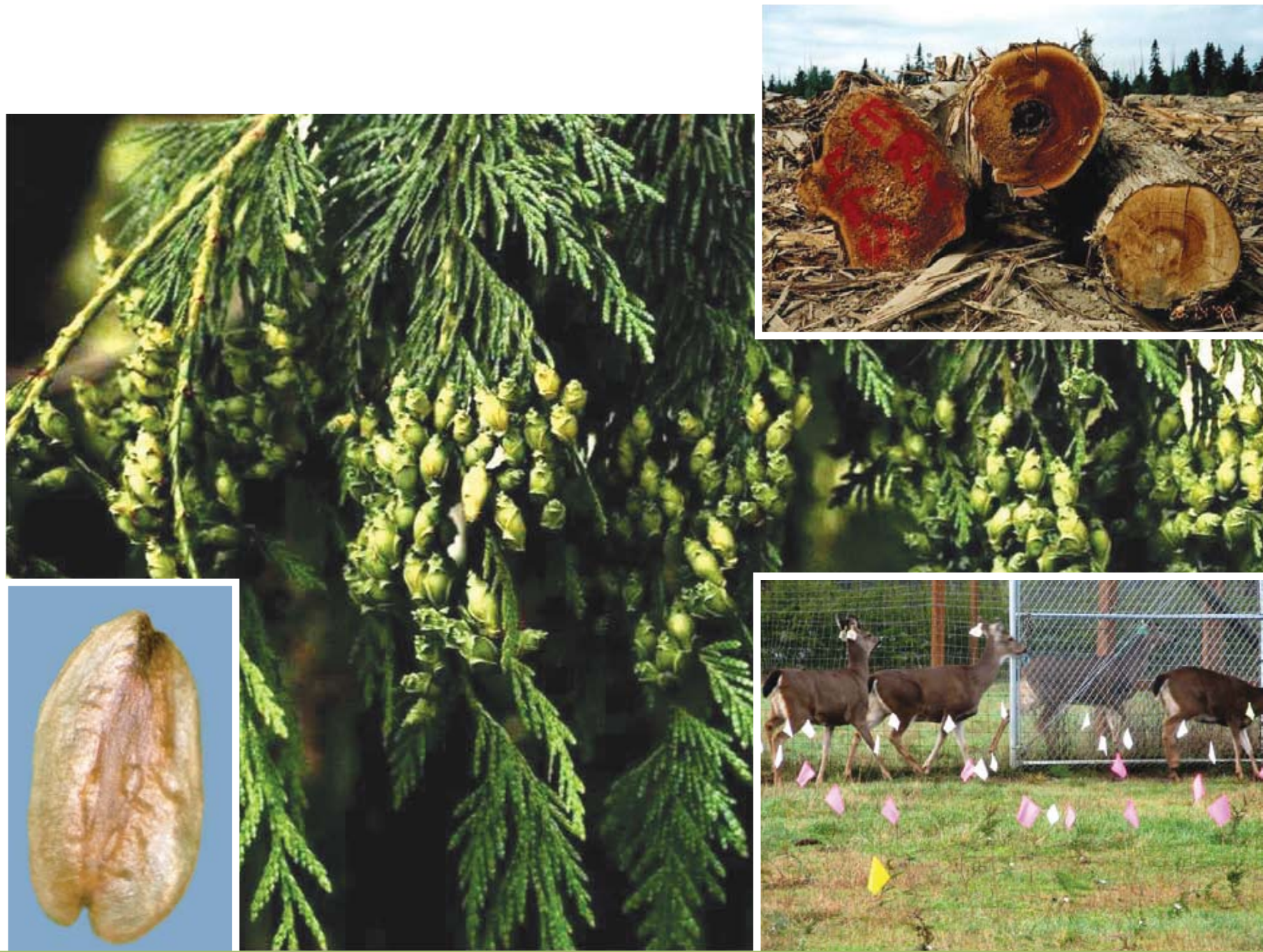
Ensuring sound stewardship of the genetic resources of British Columbia’s tree species to sustain well-adapted, healthy, productive forests.

Current issues and solutions for western redcedar – *Thuja plicata*

Genetic Resource Management Issues

Western redcedar’s adaptive plasticity, broad range, and rapid growth provide management flexibility.

- Ensuring that genetic resources are adequately conserved across the species’ range.
- Deer browse can heavily damage seedlings, requiring costly management.
- Predicting growth and adaptability of redcedar populations in a changing climate.
- Determining how best to continue providing end product value as markets and operations shift from old growth to second growth.
- Understanding current and future trends in fungal degradation of heartwood, which affects the primary product value for western redcedar.
- Cedar leaf blight impacts in maritime low-elevation sites will increase with climate change.






Research and Management Solutions

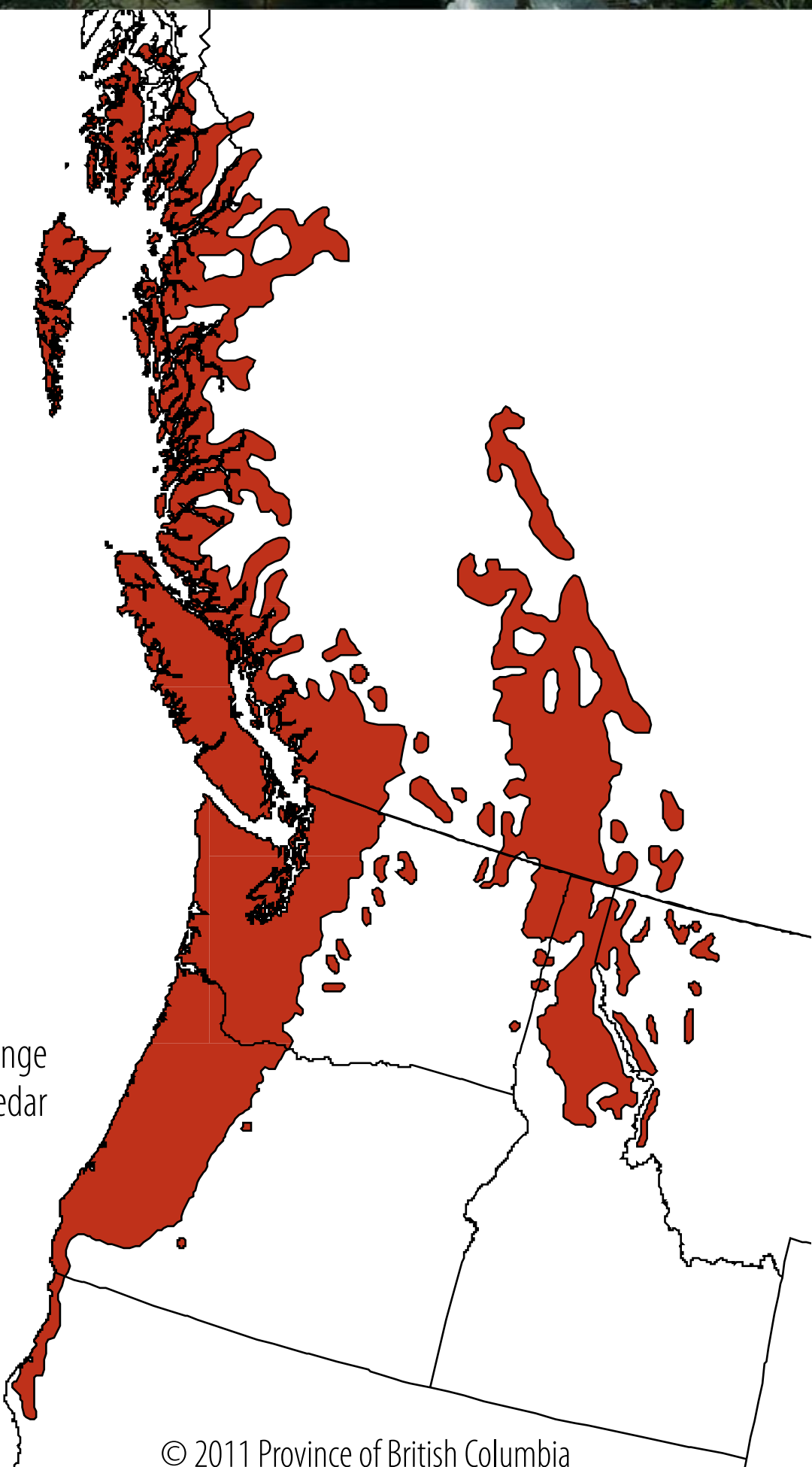
Integrating genetic management of forest health, adaptation, and growth will produce more resilient cedar forests.

- Developing durable populations for heartwood quality, deer browse avoidance, and cedar leaf blight resistance while maintaining growth and adaptability.
- Rapidly advancing program integrates phenotyping with advanced breeding techniques, biochemical profiling, and molecular markers.
- Operational deployment trials for deer browse resistance are under way with industry partners.
- This species is well conserved throughout BC in its core habitat in protected areas, clone archives, and seed banks, but gaps exist in peripheral populations.



Genetic conservation status by ecological region							
	CDF	CWH	IDF	ICH	MS	MH	ESSF
<i>In situ</i>	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
<i>Ex situ</i> seeds	GOOD	GOOD	GOOD	GOOD	LOW	GOOD	GOOD
<i>Ex situ</i> archives	LOW	GOOD	GOOD	GOOD	LOW	LOW	LOW
<i>Inter situ</i>	LOW	GOOD	LOW	GOOD	LOW	LOW	LOW

			
<i>In situ</i>			
<i>Ex situ</i>			
<i>Inter situ</i>			
Definition	Conserved in a protected area	Conserved outside its natural habitat	A plantation conserving the genetic resources of a representative population
Example	Provincial park	Seed collections, clonal archives	First-generation progeny trial for one seed planning unit
Threshold	3 per zone with 5000+ mature trees	Seeds: 3 populations per region with 1000+ seeds collected from 10+ unrelated trees Archives: 100+ genotypes per region	100+ genotypes per region



Current natural range of western redcedar



Ministry of
Forests, Lands and
Natural Resource Operations