Developing Best Management Practices for Whitebark Pine

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Developing Best Management Practices for Whitebark Pine

Outline

- Species Description
- Distribution
- Habitats
- Ecological Importance
- First Nations
- Conservation Concerns
- Recovery Activities Where are we so far
- Potential Forestry BMP's

Species Description

- Needles in clusters of five
- Purplish closed cones
- High elevation
- Often with multi-stemmed form
- May have good form at lower elevations









Species Description

- Very large seeds
- Indehiscent cones



Species Description



BC Distribution

- Mountainous regions of BC
- Generally above 1700m; regionally lower in locations such as Chilcotin and Smithers

Pinus albicaulis Engelm. - Whitebark pine



• Parkland



• Parkland



• Parkland



• High elevation closed forests



Ecological Importance



Ecological Importance

- Has been reported to travel 32 km with seeds
- Can cache up to 100,000 seeds in a mast year



Multi-stemmed often due to seed caching





Ecological Importance

	Al and
1 cup dried pine nuts Calories 909 Calories From Fat 81	er serving for 1 cup fresh blueberries Calories 84 Calories from Fat
78 Selly Value* 23% of caloric needs	2% of caloric needs
Total Fat 92g (85%) Saturated Fat 7g	Total Fat 0g (0%) Saturated Fat 0g
Trans Fat 0g	Trans Fat 0g
Cholesterol 0mg	Cholesterol 0mg
Sodium 3mg	Sodium 1mg
Total Carbohydrate 18g (7.5%) Dietary Fiber 5g	Total Carbohydrate 21g (95%) Dietary Fiber 4g
Sugars 5g	Sugars 15g

Percent Daily Values are based on a 4,000 calorie diet.

Carolin et al.





First Nations

The Thompson and Ts'ilhqot'in people ate the seeds both raw and roasted. They preserved them for winter by cooking and crushing them, and then mixing them with dried berries, or pounding them to make a fine flour.

First Nations



First Nations



- Endangered –
 Species at Risk
 Act
- Blue Listed BC CDC



• White Pine Blister Rust



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Natural Resource District	Mean Infection Rate +/- st. dev	Sample Size (N)
100 Mile House	35 <u>+</u> 10	N=4
Cariboo Chilcotin	23 <u>+</u> 15	N=41
Cascades	27 <u>+</u> 18	N=130
Chilliwack	57 <u>+</u> 17	N=9
Coast Mountains	n/a	N=0
Fort St. James	52 <u>+</u> 25	N=17
Nadina	45 <u>+</u> 18	N=16
North Island – Central Coast	27 <u>+</u> 16	N=16
(Mainland)		
Okanagan Shuswap	30 <u>+</u> 20	N=29
Peace	n/a	N=0
Prince George	50 <u>+</u> 25	N=28
Quesnel	43 <u>+</u> 38	N=5
Rocky Mountain	57 <u>+</u> 21	N=94
Sea to Sky	31 <u>+</u> 16	N=16
Selkirk	49 <u>+</u> 19	N=131
Skeena Stikine	45 <u>+</u> 28	N=24
Sunshine Coast	n/a	N=0
Thompson Rivers	74 <u>+</u> 28	N=2
Vanderhoof	28 <u>+</u> 14	N=11



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• Mountain Pine Beetle



Fire Suppression





• Global Climate Change



• Actions so far...

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 Plans – Federal Recovery Strategy, Omineca Tactical Plan, Promoting Whitebark Pine Recovery in BC, St'at'imc, Canfor SWP (from Tembec – 2005)

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 - Province is leading a rust screening program
 - Planting ~ 60,000 seedlings province-wide so far

Recovery – Cone Collections





Recovery – White Pine Blister Rust Screening





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Forestry

Why BMP's?

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 Without guidance forestry is having a negative impact on whitebark pine, with guidance forestry can greatly contribute to recovery

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Why BMP's?

- Without guidance forestry is having a negative impact on whitebark pine, with guidance forestry can greatly contribute to recovery
- Federal government may take a heavy handed approach if Province isn't demonstrating sufficient recovery actions

- Include whitebark pine in forest stewardship plans
- Familiarize yourself with Acts and Regulations - they are dynamic
- Plan ahead there is demand for whitebark pine seedlings but it is a 2-3 production period, let nurseries know of interest in planting whitebark pine
- Train all staff, including seasonal and contractors, about whitebark pine



Timber Cruising BMP's

- Correctly identify, measure and record all whitebark pine occurring in cruise plots
- Use Pine Beetle Codes (1-3) where appropriate
- **Use Blister Rust Code 4, where appropriate**
- Ensure that whitebark pine is correctly entered and uploaded into company and government databases as Pa



Layout BMP's

- Train layout crew on correct identification of whitebark pine and blister rust
- Survey all potential cutblock areas for whitebark pine and retain area of high density as WTP's or other reserves
- Mark all whitebark pine using a predetermined method
- Map the location of each tree using GPS to aid in planning



Retention/Harvest BMP's

- Train machine operators to identify whitebark pine
- If machine operators may make some allowances for safety or access, train operators to prioritize healthiest trees for retention
- □ Avoid damaging retained trees





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- Plant in dedicated whitebark units to limit competition and facilitate monitoring, may reduce risk of widespread NSR



Seed Collection – BMP's



Seed Collection – BMP's

- Select the healthiest trees
- Cage cones in early summer to protect from foragers
- **Collect cones in mid-late September**
- Employ proper seed handing and storage protocols



Silviculture Survey - BMP



Silviculture Survey - BMP

- Watch for natural regen in typical nutcracker caching locations
- Familiarize with changes in LMH 70 –
 Whitebark pine is preferred or acceptable in more units
- Tally as an unacceptable species if no other means
- Be sure to include on inventory label, where appropriate



Silviculture Surveys

Turn a negative into a positive

Recovery – Collaboration

- Mining, ski areas, and other industries have interests in in whitebark
- Shortage of seedlings across all industries



Thank-You

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