



Climate Based Seed Transfer Policy and Implementation

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“Connections through Seed”

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All that science was built into a CBST Seedlot Selection Tool - for testing and demonstration



CBST Seedlot Selection Tool Version 2.0

Instructions | I Have A Cutblock | I Have A Seedlot

Seedlot Number:
60281

Set Species & BEC

OR

Species:
PLI

BEC Variant:
ICHdw3

GO

Plantation BEC	Seed BEC	Species Suitability	Limit
ESSFdc3	ICHdw3	Suitable	
ICHdk	ICHdw3	Suitable	
ICHdw3	ICHdw3	Suitable	
ICHmk1	ICHdw3	Suitable	
ICHmk2	ICHdw3	Suitable	
ICHmk3	ICHdw3	Suitable	
ICHmk4	ICHdw3	Suitable	
ICHmm	ICHdw3	Suitable	
ICHmw1	ICHdw3	Suitable	

Area available to seedlot: 4,763,368 Ha.

Map labels: Wells Gray Provincial Park, 100 Mile House, Cache Creek, Lillooet, Kamloops, THOMPSON PLATEAU

Map coordinates: 52° 28' 53" N, 121° 18' 36" W

Map scale: 0, 20, 40km

Map attribution: Esri, © OpenStreetMap contributor

BEC Variant dropdown:
ICHmk2
Zoom to

The CBST seed deployment area (i.e. CBST Area of Use) comprises the **orange** areas marked on the map. The current seed deployment area (or Area of Use) is marked in the **brick red** colour.



What about the **risks** of introducing CBST as policy?

- Doing nothing about climate change is a higher risk
 - Losses from increased wildfire and pests
 - Loss of productivity through maladaptation
- Using CBST mitigates the impacts of climate change and reduces risk
 - We are currently planting into sites that are too warm for the seed
 - With CBST, we will be planting into sites that are slightly colder (in anticipation of ongoing climate change)
 - CBST takes a conservative approach - focusing more on catching up with climate change to date, rather than projecting too far into the future



Policy Approaches

- Chose to use an overlap period with current standards and optional CBST implementation
- In the Interim, introduced a fast tracked “CBST Alternatives process” where the FIRM Director (delegated by Chief Forester) could approve submissions that used the CBST Tool
- 2017/18 Interim Results:
 - 5.22 M seedlings (1.9%) under approved CBST alternatives
 - 62% requested by major licensees, 9% BCTS and 29% FFT
 - 74% Class A; 26% Class B



Chief Forester's Standards for Seed Use

- Formally amended April 5, 2018, came into effect August 6, 2018
- Option to use CBST standards, continue with Geographically Based Seed Transfer standards (GBST) or use a mix of both
- New cone collection requirements that align with CBST
- Other minor amendments to update reference and administrative provisions

<https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/tree-seed/legislation-standards/chief-forester-s-standards-for-seed-use>



New Cone Collection Standards

- New requirements came into effect August 6, 2018 **with no transition period.**
- Seed now required to be collected from a single BEC variant (and seed collection area to be mapped in SPAR).

Why?

- Maintain identity of seed source for future transfer limits
- Create a “CBST area of use” (based on BEC variants)
- Reduce the likelihood of increasing inventories that can not be used after the CBST transition period.

Vegetative Lot for CBST

Lot Type: Active/Expired: *
 Species: *
 Latitude: Longitude:
 BEC Zone: * BEC Subzone: * Variant:

No. of Seedlings (000's):
 Specific Lot(s):
 Crown/Private: Registered:
 Owner Agency:
 Cutting Quantity: Production Year:
 Seed Quantity:

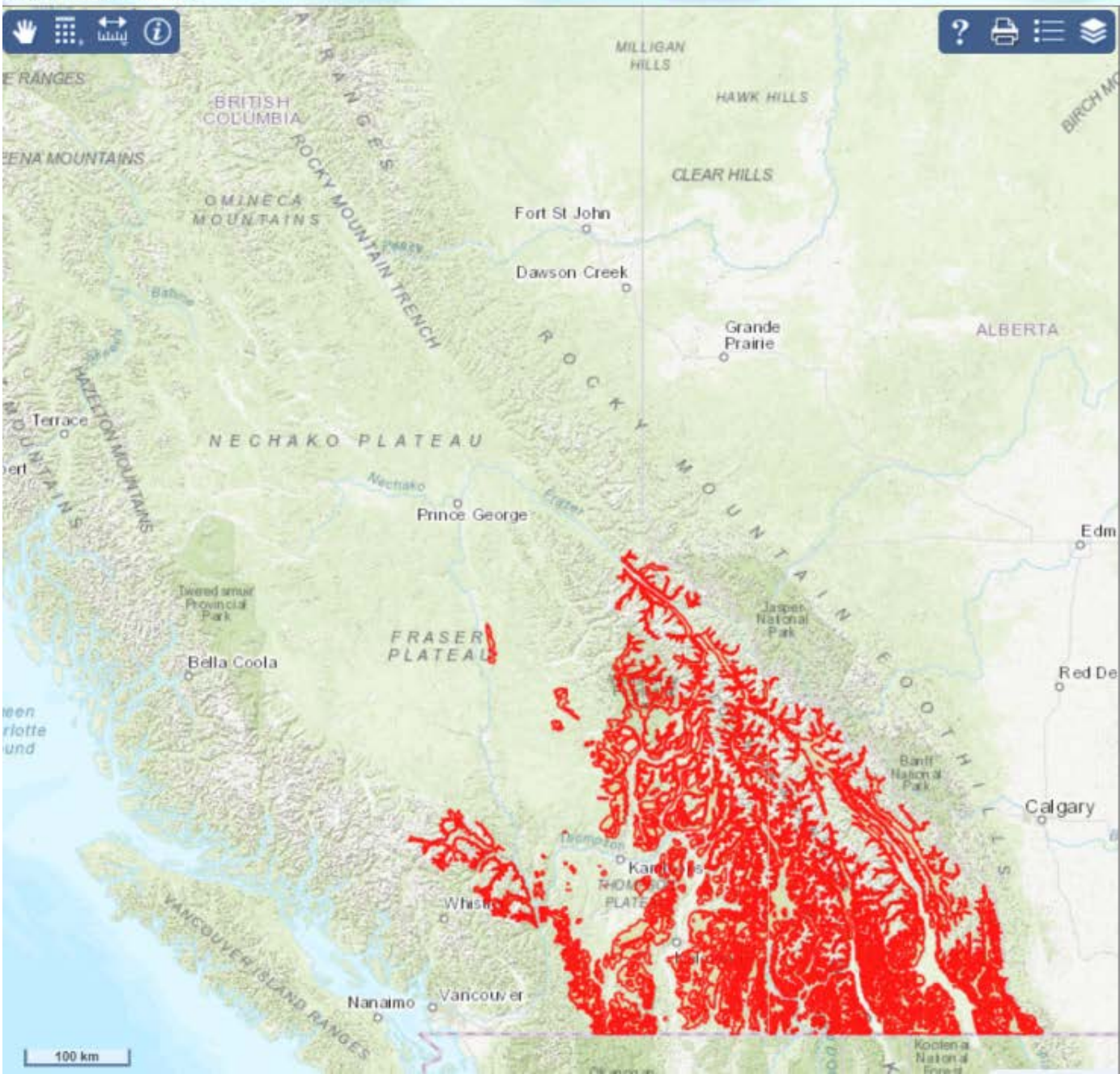
Display: Trees Quantity (grams/c cuttings)
 Orchard No./Location Lat/Long

Seedlot Quantity is displayed in grams; Vegetative lot Quantity is displayed in No. of Cuttings (in thousands)

Functionality and data incorporated into **SPAR** – for 2019 Seedling Requests

167 returned

Lot No.	Genetic Class & Germ.			C/P	Agency	BEC	Orchard No. / Location	Coll. / Reserve Surplus			DT	CBST
	Worth	%						Prod. Year	Trees (000's)	Trees (000's)		
63690	A G+34	96	C	BCTS 00	ICHmw 2	324 - BAILEY	2016	121.3	0	DT	CBST	
63690	A G+34	96	C	MOF 20	ICHmw 2	324 - BAILEY	2016	0	38.3	DT	CBST	
63586	A G+34	89	C	BCTS 00	ICHmw 2	324 - BAILEY	2015	34.5	0	DT	CBST	
63586	A G+34	89	P	TOLKO 01	ICHmw 2	324 - BAILEY	2015	1.6	0	DT	CBST	
63535	A G+34	84	C	BCTS 00	ICHmw 2	324 - BAILEY	2014	0	3.5	DT	CBST	
63377	A G+33	82	C	BCTS 00	ICHmw 2	324 - BAILEY	2012	0	3.1	DT	CBST	



CBST Area of Use Tool

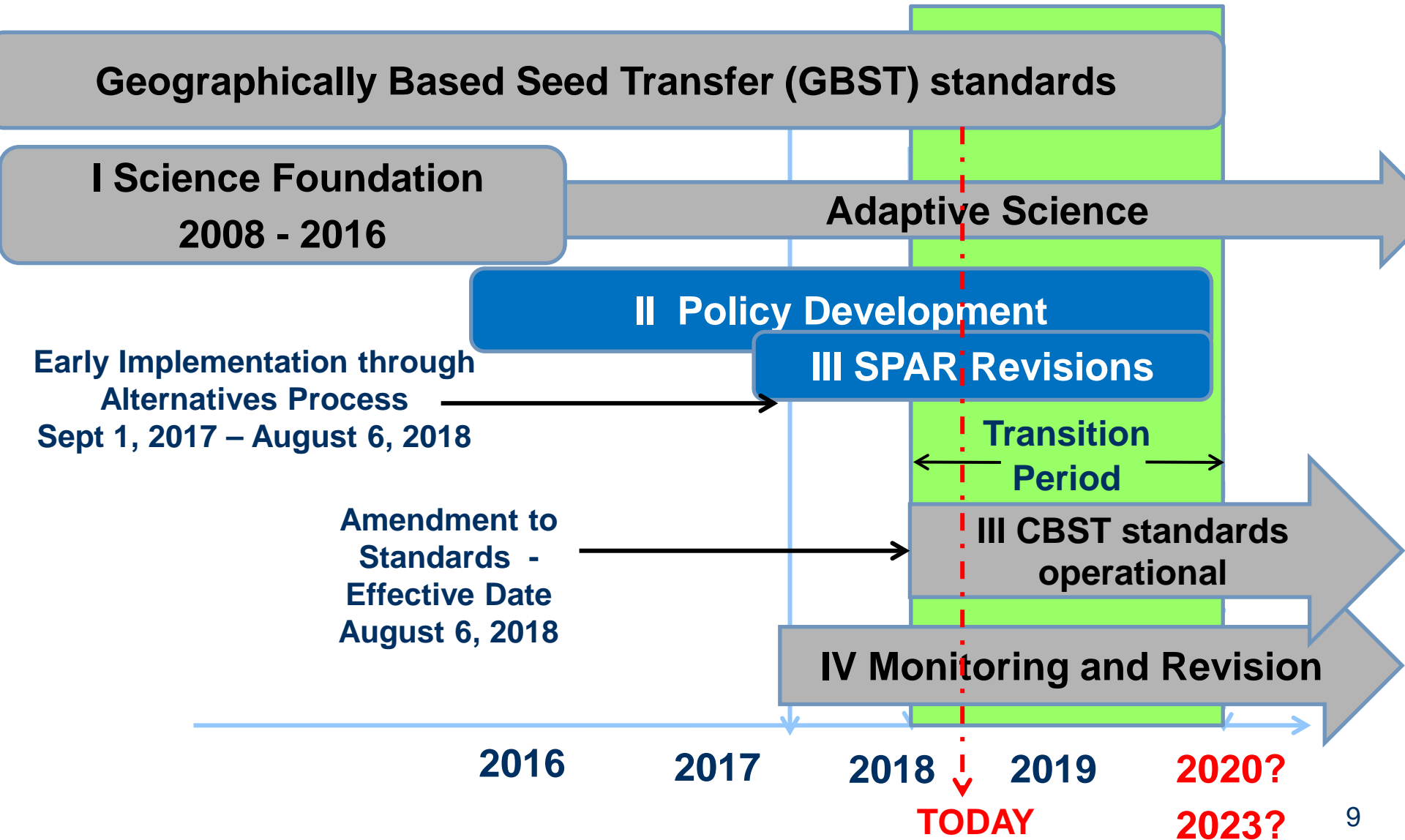
List of Biogeoclimatic Zone/Subzone/Variant where the Seedlot or Vegetative Lot can be planted

(*) Species may not be suitable in this BEC unit

Seedlot Number: 63690

- BEC Zone
- ESSFdc1
- ESSFdc2
- ESSFdc3
- ESSFdk1
- ESSFmh
- ESSFmw1
- ESSFmw2
- ESSFwh1
- ESSFwh2
- ESSFwh3
- ESSFwm1
- ESSFwm2
- ESSFwm4
- ESSFxc1
- ESSFxc2
- ICHdm
- ICHmk1
- ICHmk2
- ICHmk4
- ICHmm
- ICHmw1
- ICHmw2
- ICHmw3
- ICHmw4
- ICHmw5
- ICHvk1
- ICHwk1
- MSdc1
- MSdc3
- MSdk1
- MSdk2
- MSdm1
- MSdm2
- MSdm3

CBST Policy Timeline





The Transition Period

- GBST standards will be removed as an option at end of transition period
- Opportunity to use up seed that may not be useable under CBST
- Chief Forester signaled a 2 year transition
- Gap analysis in process - combined with planned updates (further shifts to Areas of Use) current thinking is 3 (or 4?) years.



CBST Impact Assessment and Gap Analysis

- To what degree does CBST impact seed use, investments, and assets, including:
 - Seed Users
 - Seed Owners; and
 - Seed Producers?
- How are CBST impacts characterized compared to previous deployability of a seed lot (losses, gains)?
- What are the opportunities (e.g. new seed sources moving in)?
- Where are the gaps in CBST coverage? (in the short and long term)?
- What do we do about “orphans”? Seedlots with no where to plant, or BEC variants with no seed source?



Options to address Class A deficits

- In the transition period, use GBST transfer standards
- Use A Class seed from the BEC variant with the highest genetic suitability match - POLICY OPTION
- Use A Class seed from US (if it exists, is available and can be registered for use in BC)
- A new Orchard with parents from drier and warmer BECvars (BC or US) could be established.
- Infuse existing orchards with drier warmer parents.
- Use B Class seed (BC or US)



Seed Supply Planning under CBST

- Overlaps in deployment between interim planning units are substantive.
- Check deployment BECvars, inventory and orchard forecasts before considering collections (new SPAR report available)
- Keep collections to under 2 to 5 years supply.
- Plant Wizard and Phoenix (licencee planning tools) are being updated to include CBST
- Expect new or modified orchards in 5 to 10 years.



Ministry of Forests, Lands, Natural Resource Operations and Rural Development

See, Ministry of Forests, Lands, Natural Resource Operations and Rural Development, **Tree Seed** and **CBST** webpages,

www.gov.bc.ca/climatebasedseedtransfer

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