

UQAC

Université du Québec
à Chicoutimi

Ressources naturelles
et Forêts

Québec 

Fonds de recherche
Nature et
technologies

Québec 

L'impact de l'adaptation locale sur les traits fonctionnels et l'allocation des ressources chez l'épinette noire.

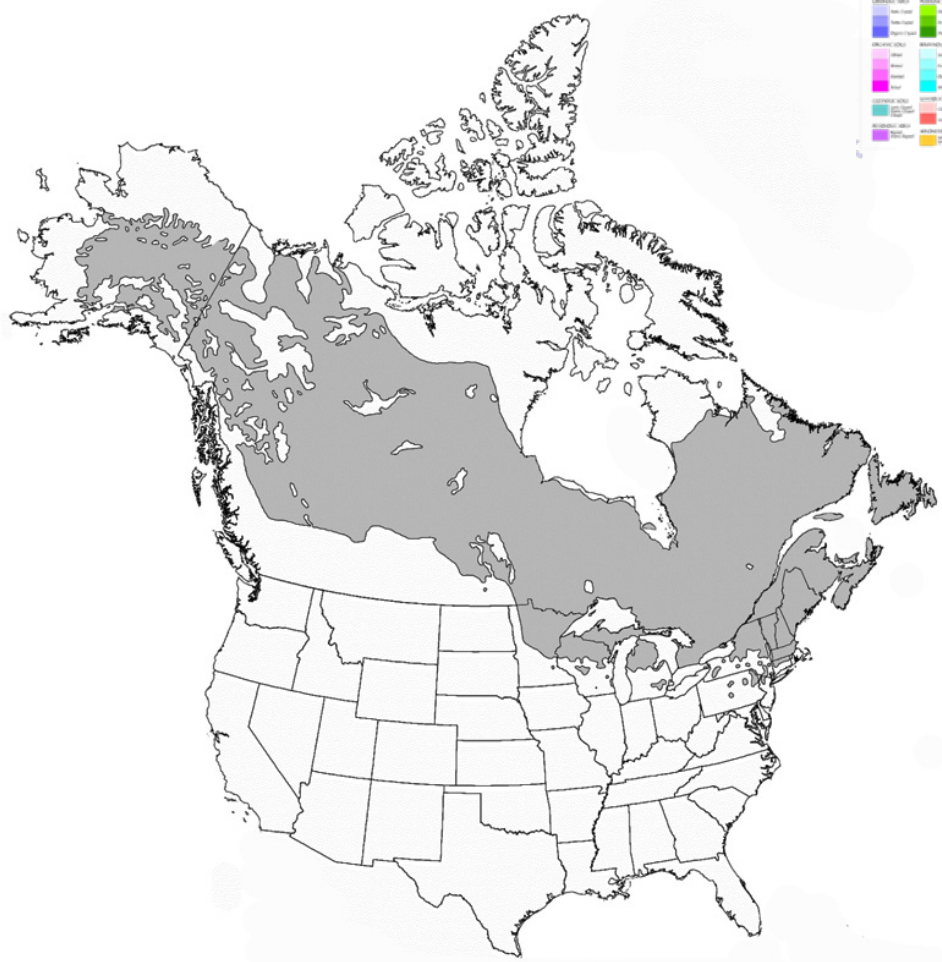
Roberto Silvestro

roberto.silvestro1@uqac.ca



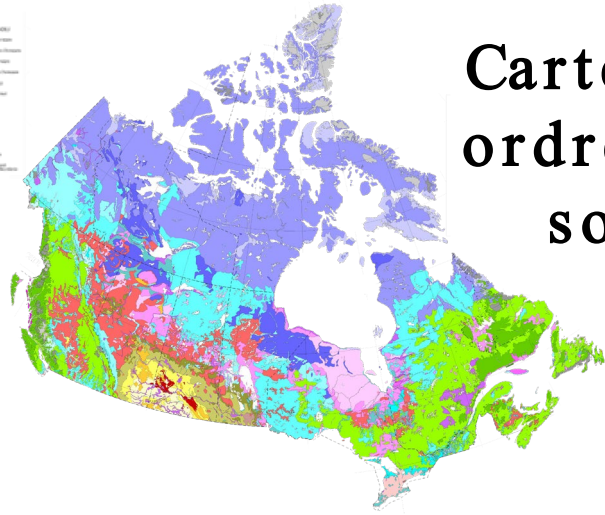
L'épinette noire





LEGEND

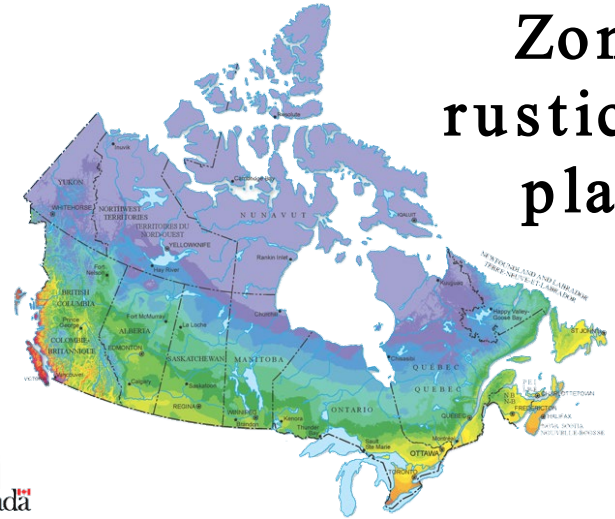
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**Carte des
ordres de
sols**

Zone

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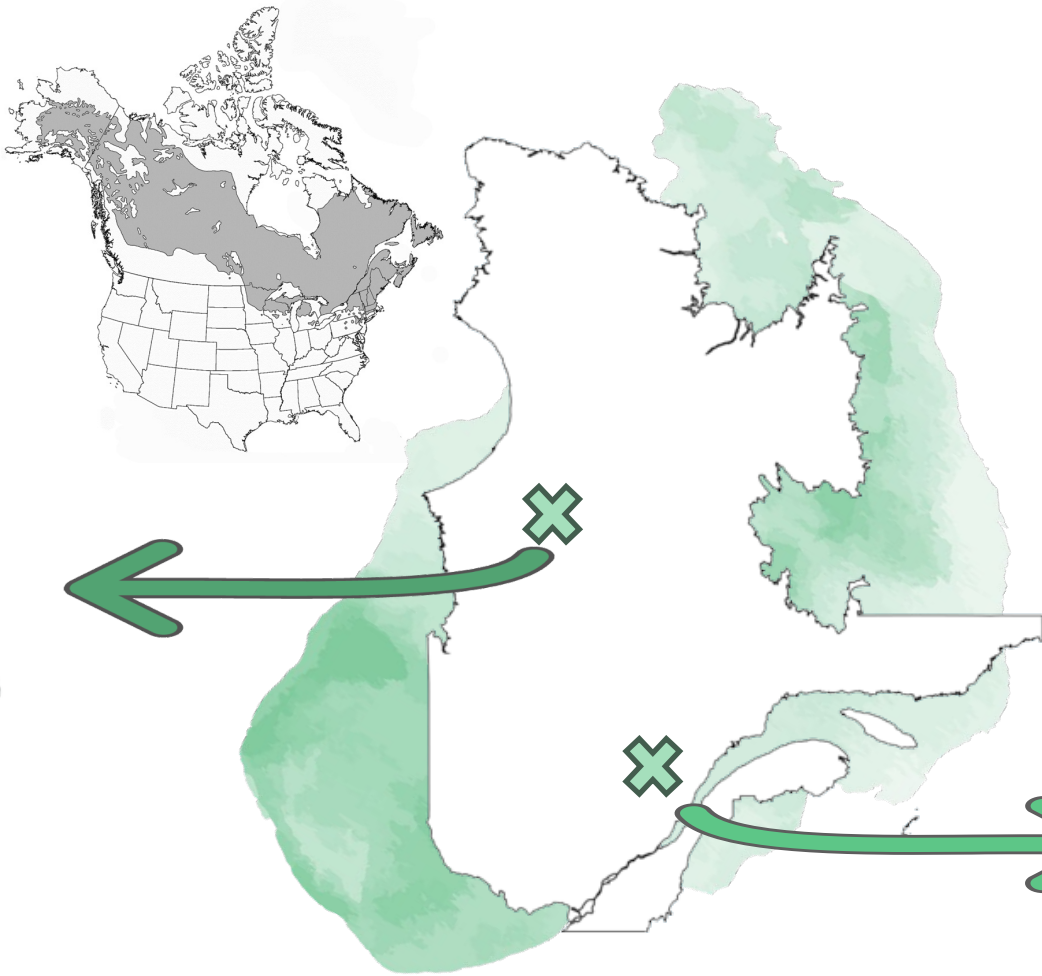


**Zone de
rusticité des
plantes**

L'épinette noire est le
conifère qui a le plus grand
spectre d'adaptation au
niveau écologique en
Amérique du Nord.

- *Jean Bousquet*

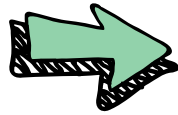
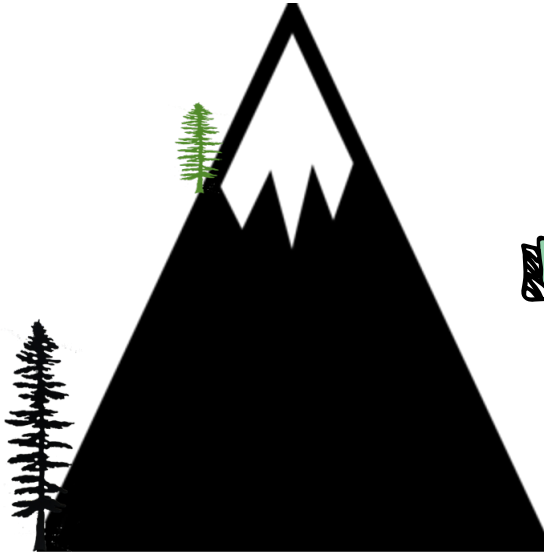




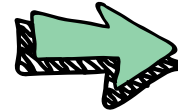
Cadre théorique

Dans la nature :

Dans une plantation :

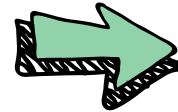
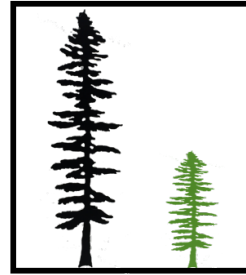


1



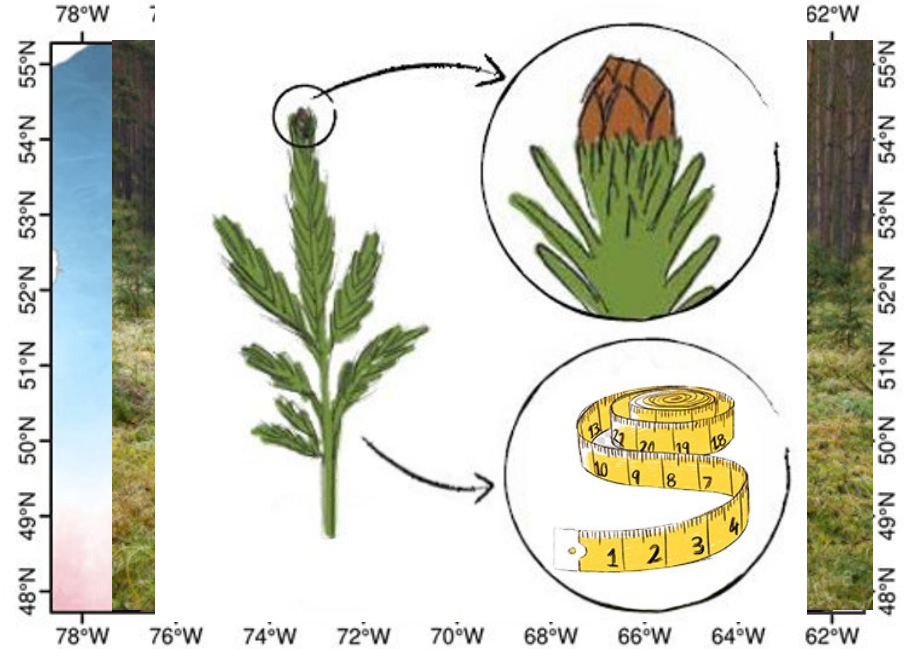
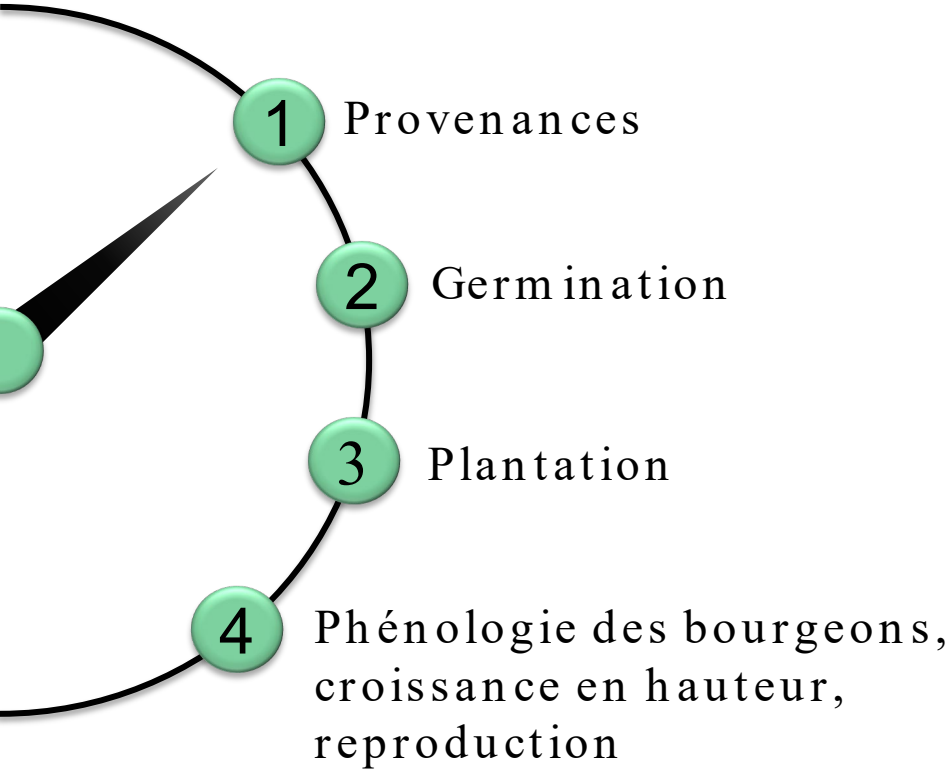
Environnement

2



Génétique

Méthodologie



Phénologie du débourrement

Dhont et al. (2010)



Open bud

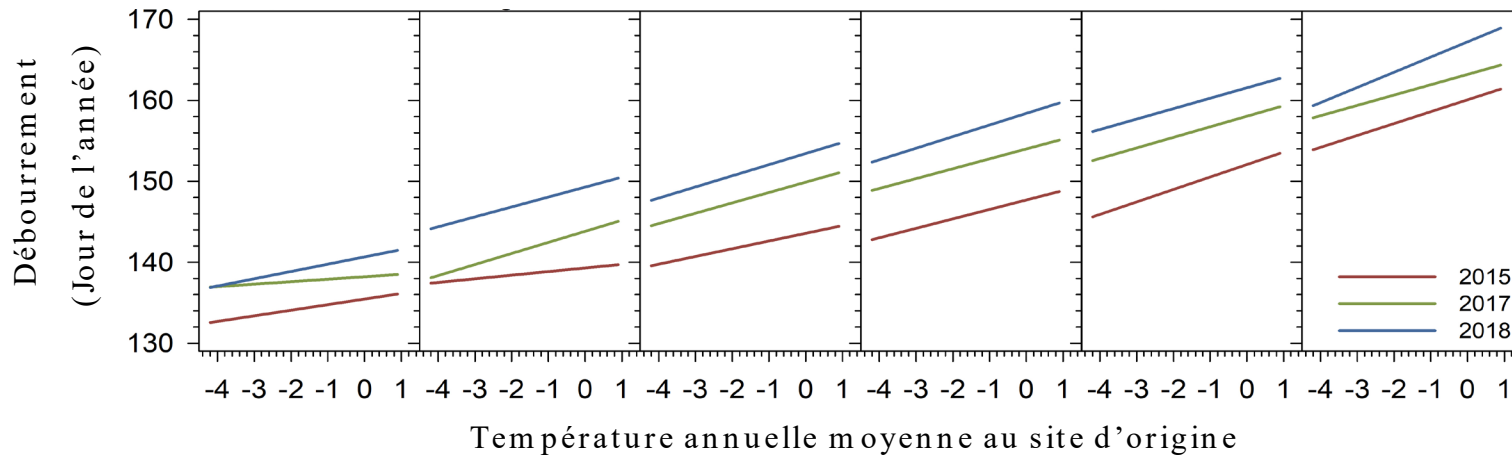
Elongated bud

Swollen bud

Translucent bud

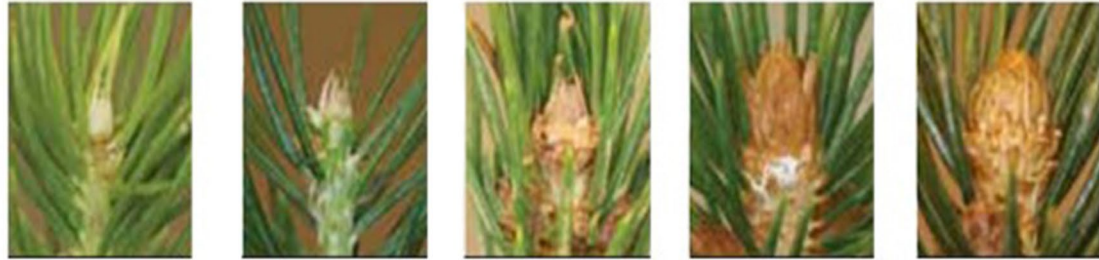
Split bud

Exposed shoot



Phénologie de la formation des bourgeons

Dhont et al. (2010)



White bud

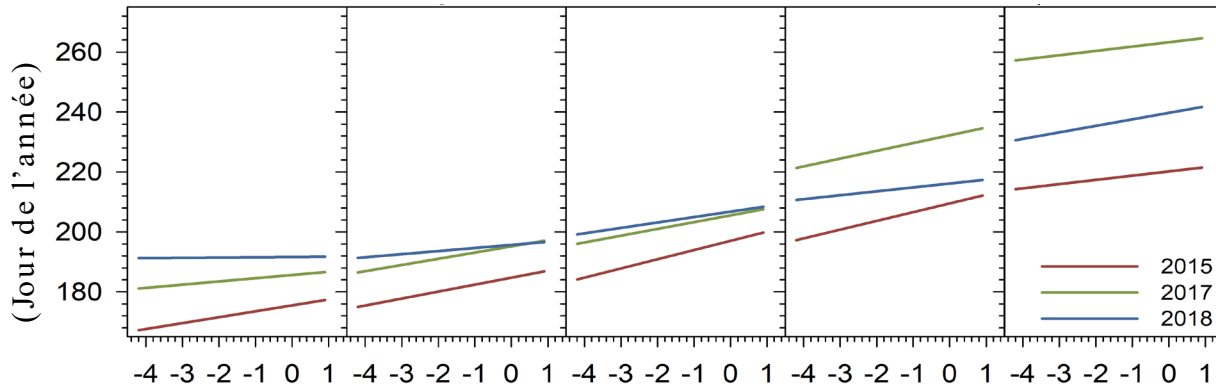
Beige bud

Brownish bud

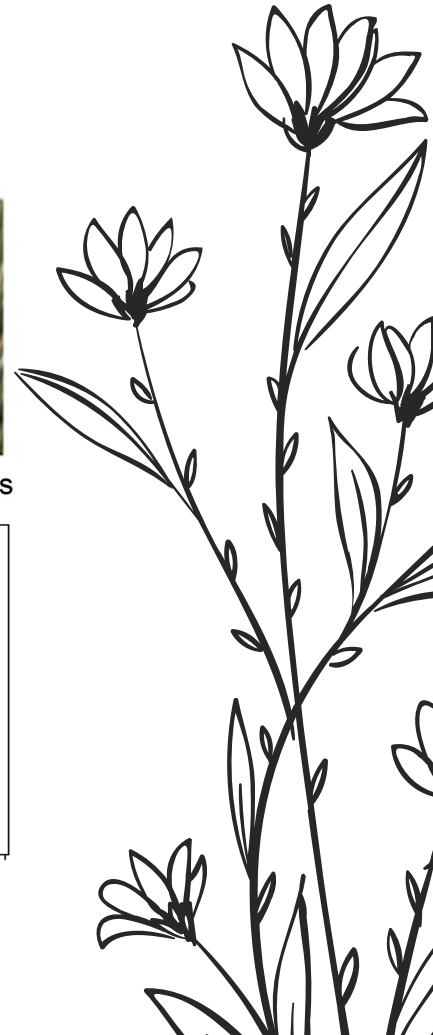
Brown bud

Spread needles

Formation des bourgeons



Température annuelle moyenne au site d'origine



Croissance en hauteur

Fin du débourrement

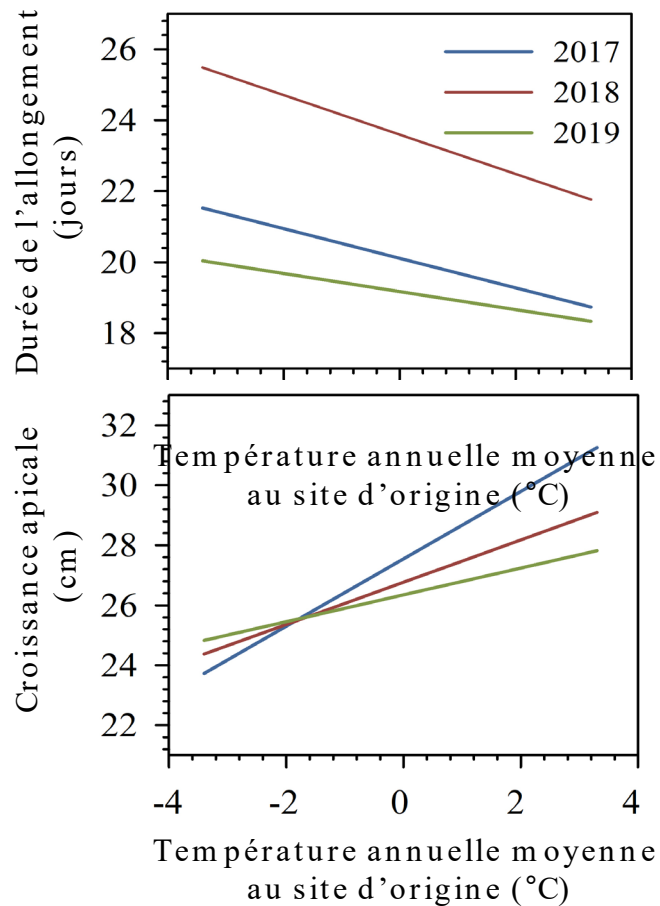
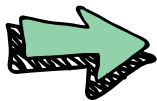


Exposed shoot

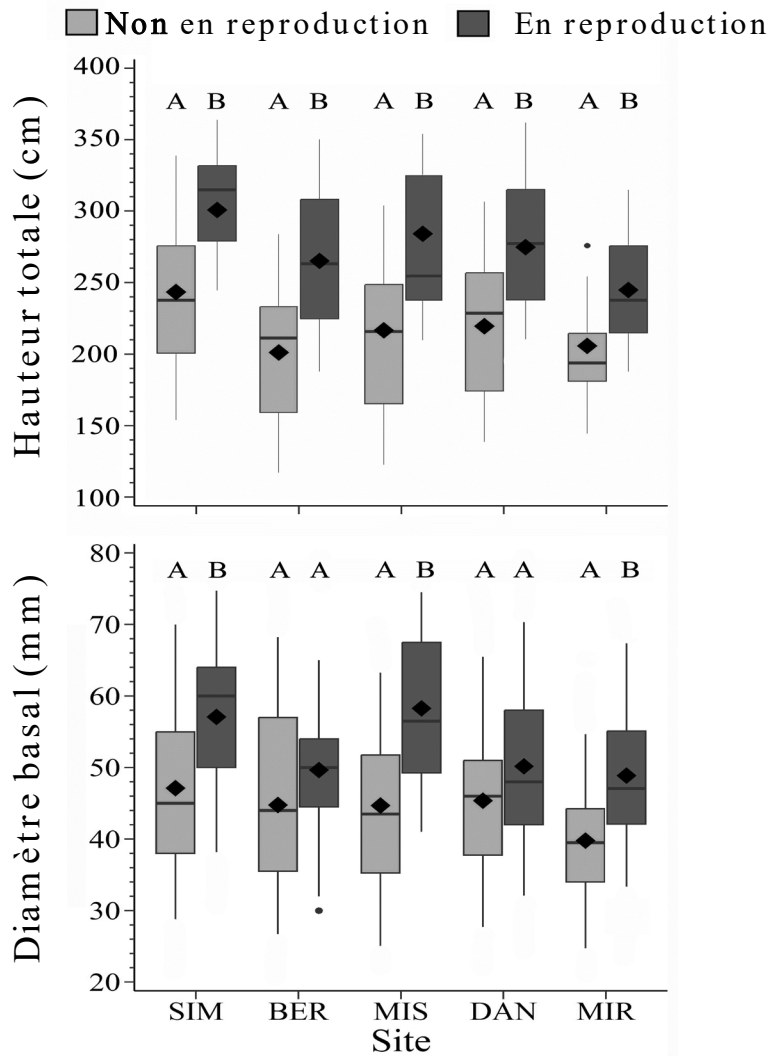
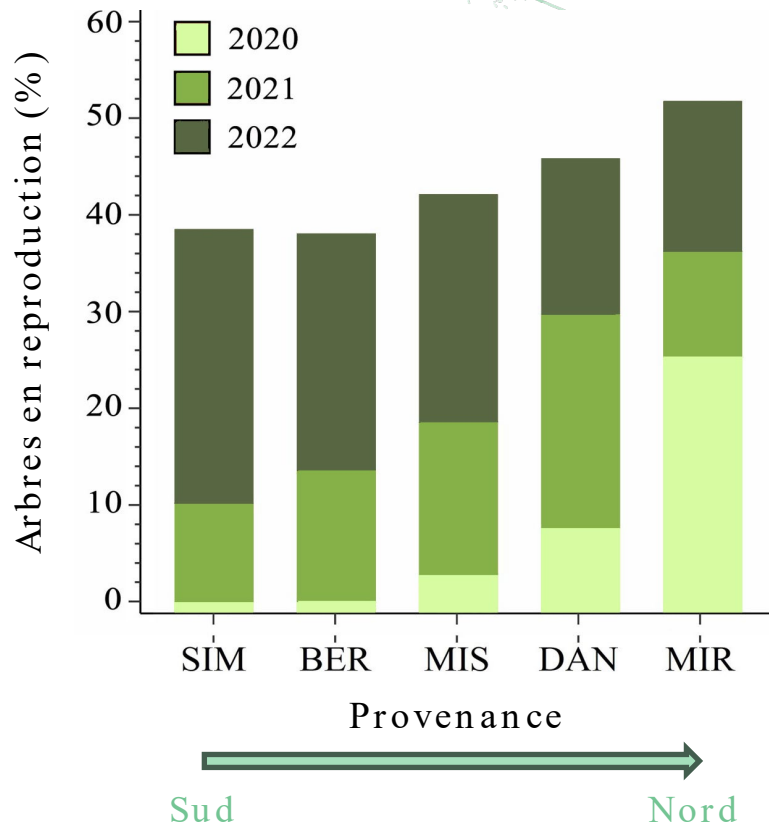
Début de la formation
des bourgeons



White bud



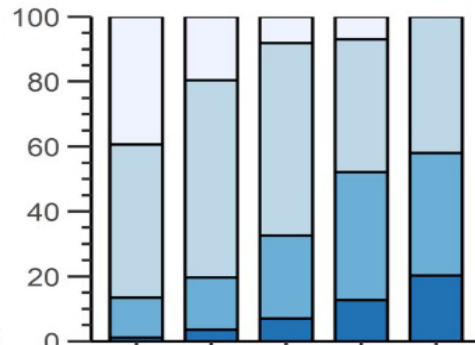
Reproduction



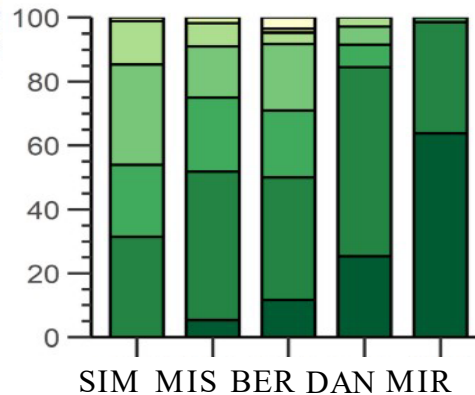
Dommmages causés par le gel



Bourgeons endommagés (%)



Nombre d'arbres (%)



SIM MIS BER DAN MIR

Provenance

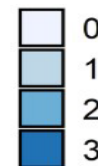


South

North

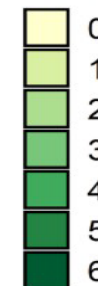
Degré

d'endommagement

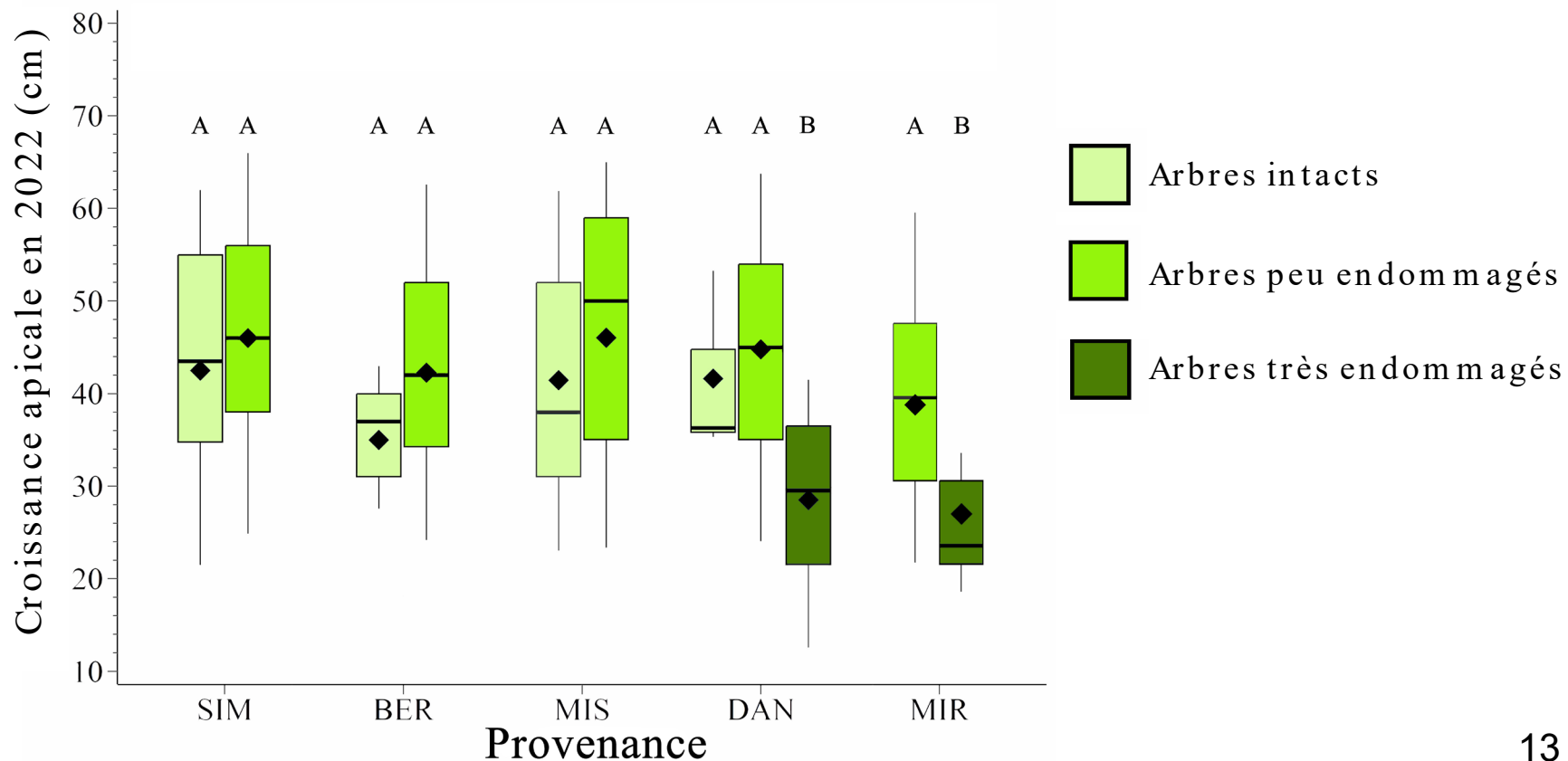


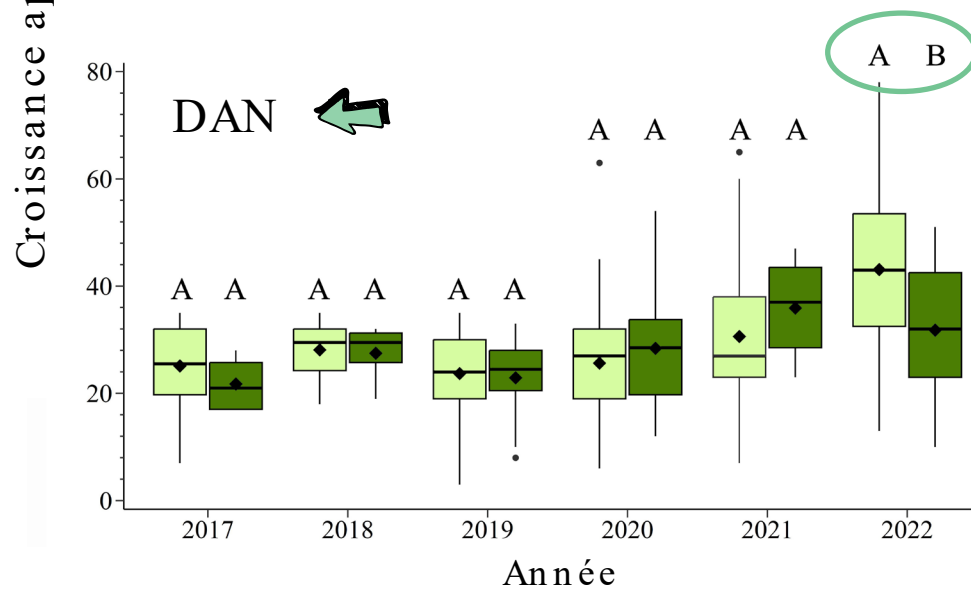
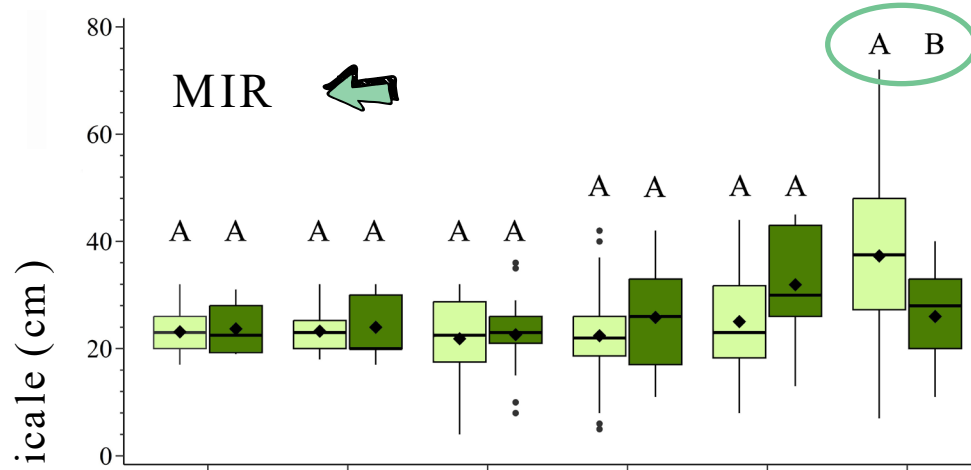
Phénophase du

débourrement



Les dommages causés par le gel affectent-ils la croissance ?





Conclusions

01

Les provenances répartissent le carbone différemment

02

Les provenances nordiques pourraient être mal adaptées aux changements climatiques.

03

La diversité fonctionnelle doit être prise en compte lors de la planification d'une nouvelle plantation ou d'un projet de restauration forestière.



Références

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- Guo, X., Klisz, M., Puchałka, R., **Silvestro, R.**, Faubert, P., Belien, E., ... & Rossi, S. (2022). Common-garden experiment reveals clinal trends of bud phenology in black spruce populations from a latitudinal gradient in the boreal forest. *Journal of Ecology*, 110(5), 1043- 1053.
- **Silvestro, R.**, Brasseur, S., Klisz, M., Mencuccini, M., & Rossi, S. (2020). Bioclimatic distance and performance of apical shoot extension: disentangling the role of growth rate and duration in ecotypic differentiation. *Forest Ecology and Management*, 477, 118483.
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- **Silvestro, R.**, Rossi, S., Zhang, S., Froment, I., Huang, J. G., & Saracino, A. (2019). From phenology to forest management: Ecotypes selection can avoid early or late frosts, but not both. *Forest Ecology and Management*, 436, 21-26.

Grazie!
Merci!



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