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Challenges and Opportunities for Forest Vegetation Management *In a New Era*

Nelson Thiffault, ing.f., *Ph. D.*

Canadian Wood Fibre Centre
Canadian Forest Service

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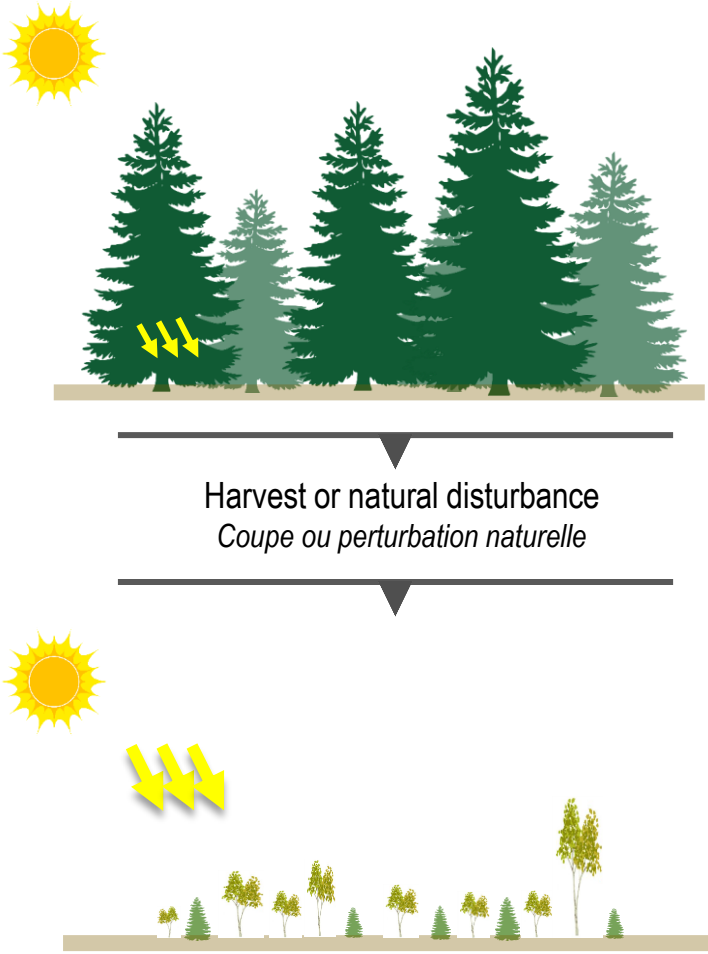
Canada

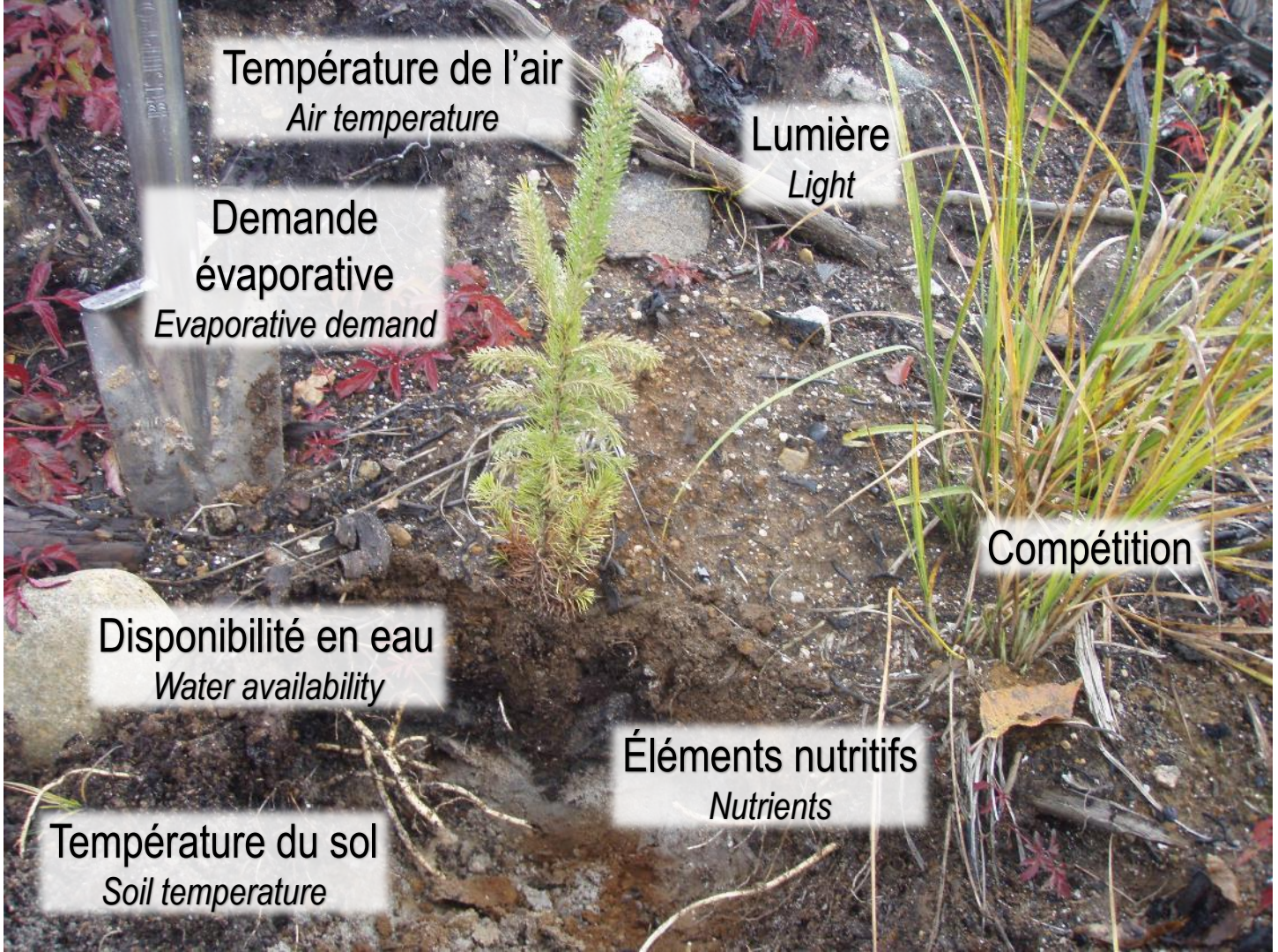
Competition

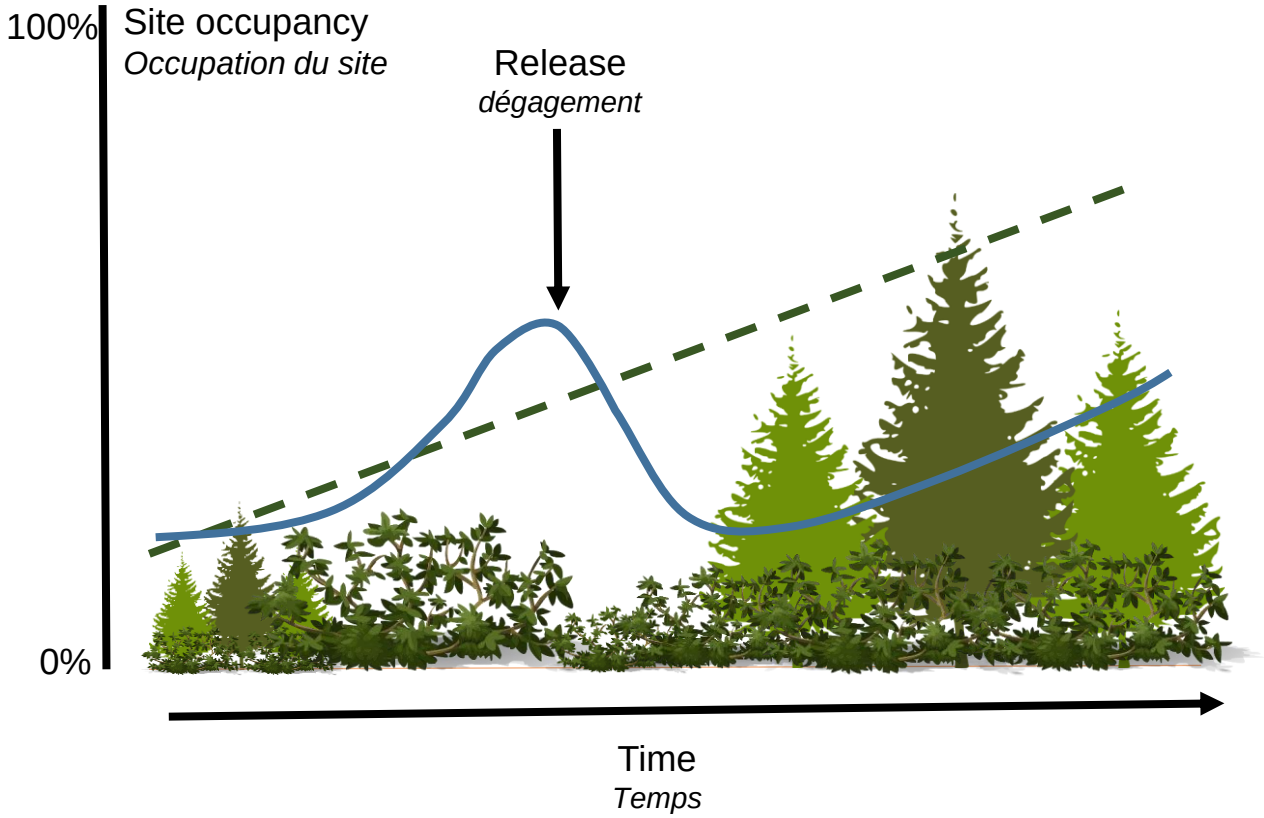
The tendency of neighbouring plants to utilize the same quantum of light, ion of mineral nutrient, molecule of water, or volume of space.

La tendance des plantes à utiliser le même quantum de lumière, le même ion de nutriment, la même molécule d'eau ou le même volume d'espace.

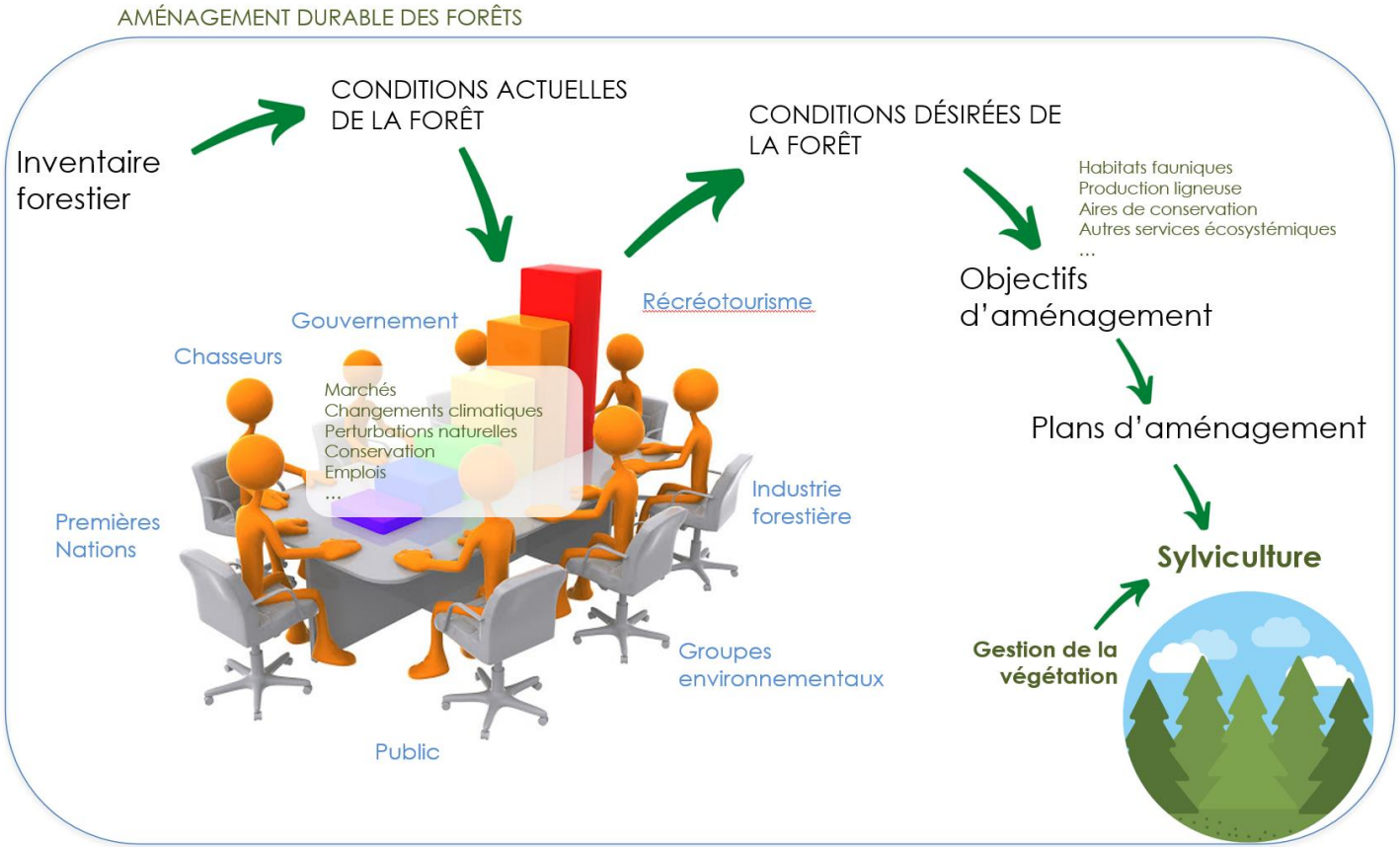
Grime (1979)


Harvest or natural disturbance
Coupe ou perturbation naturelle

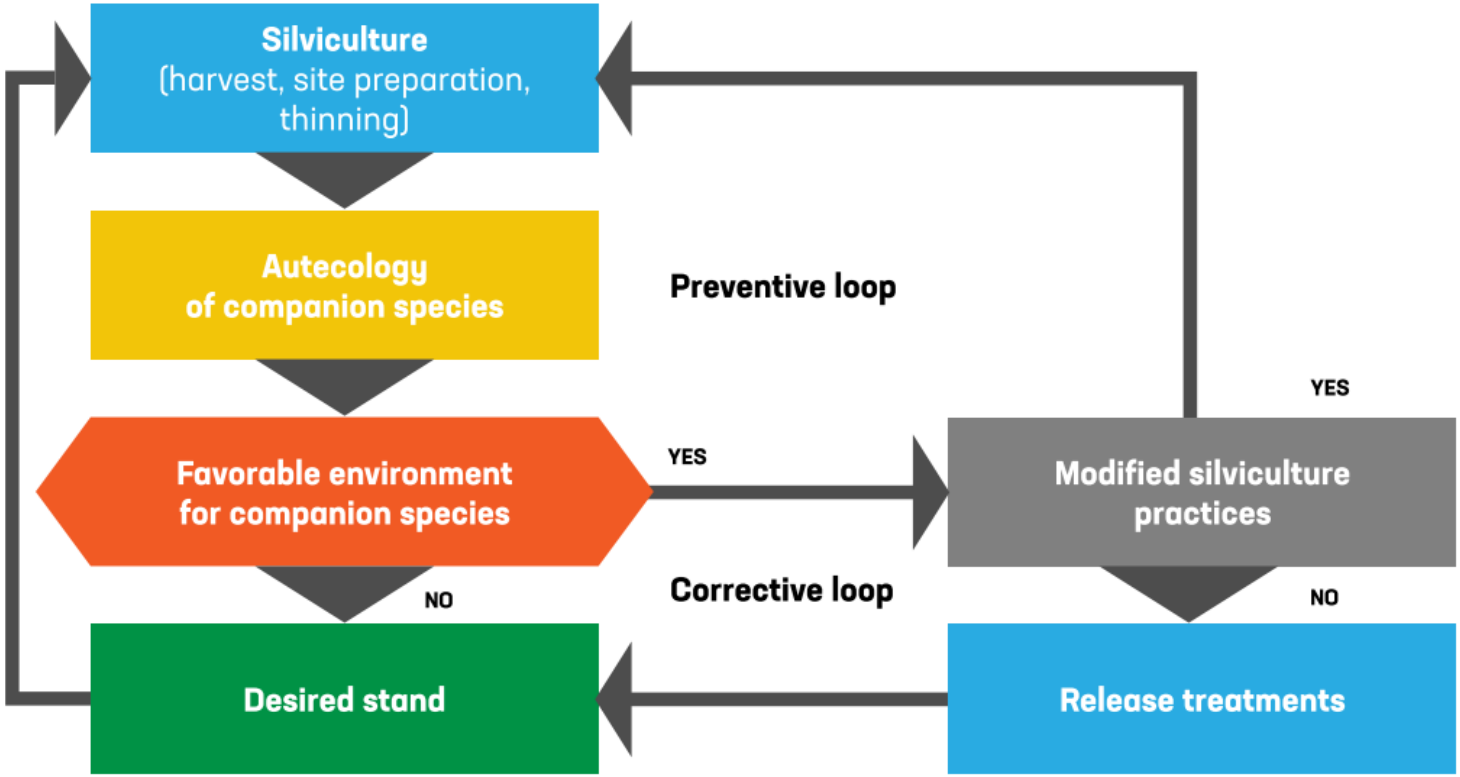

Température de l'air
Air temperature
Lumière
Light
Demande évaporative
Evaporative demand
Compétition
Disponibilité en eau
Water availability
Éléments nutritifs
Nutrients
Température du sol
Soil temperature


100%
Site occupancy
Occupation du site
Release
dégagement
0%
Time
Temps

Vegetation management is not an end in itself



First Nations values
Water and aquatic habitat quality
Internal structure of the stands
Issues associated with roads
Fertility, productivity and profitability
Forest resistance, resilience and adaptability
Repetitive planting scenario
Landscape structure
Social acceptability, visual quality and wildlife



Adapted from Wagner et al. (2001) and Wiensczyk et al. (2011)

No « one size fits all » solution

Table saw

Mitre
circular saw

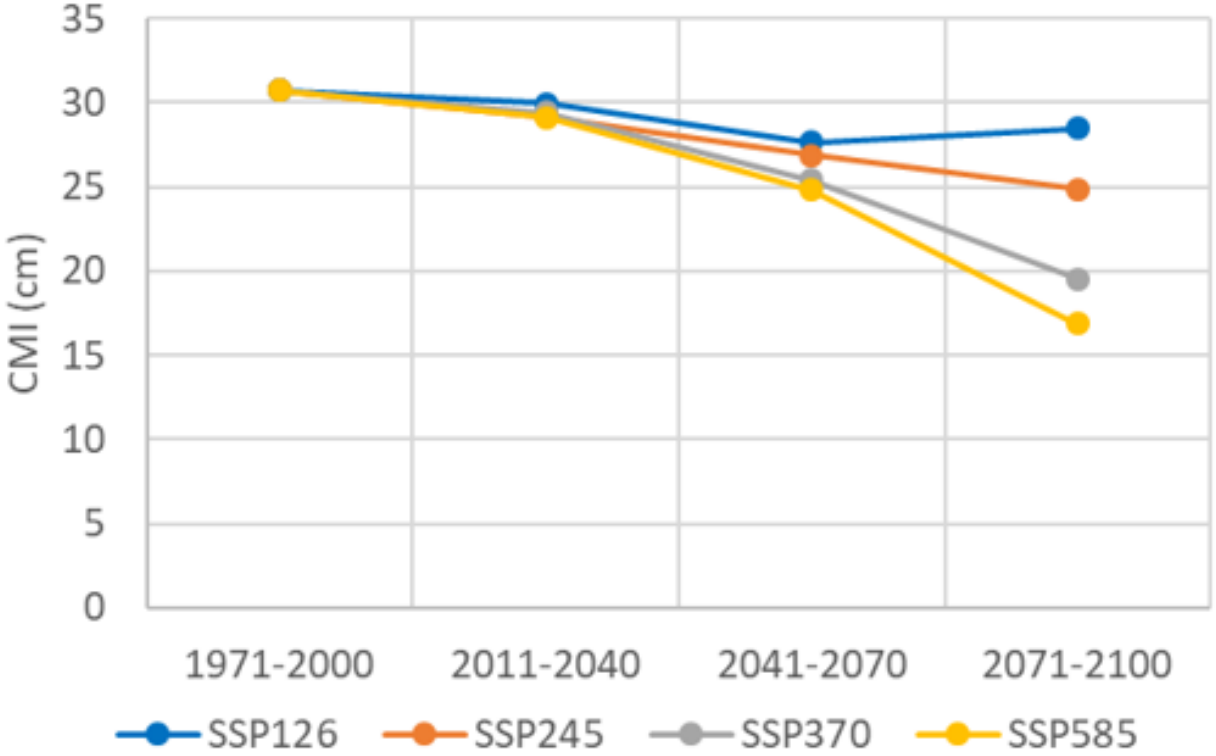
Reciprocating
saw

Jigsaw

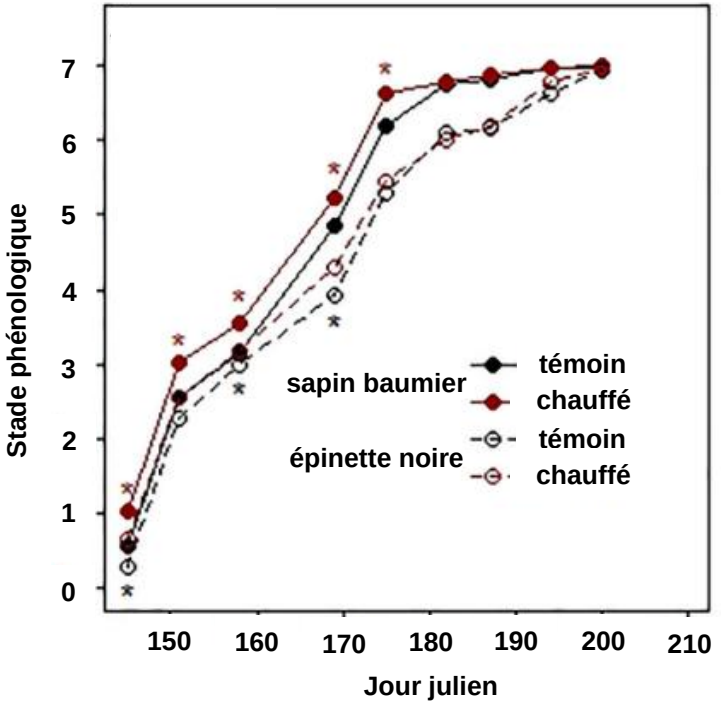
DEFYING
MOTHER NATURE

Climate change

Predicted Climate Moisture Index at the Petawawa Research Forest



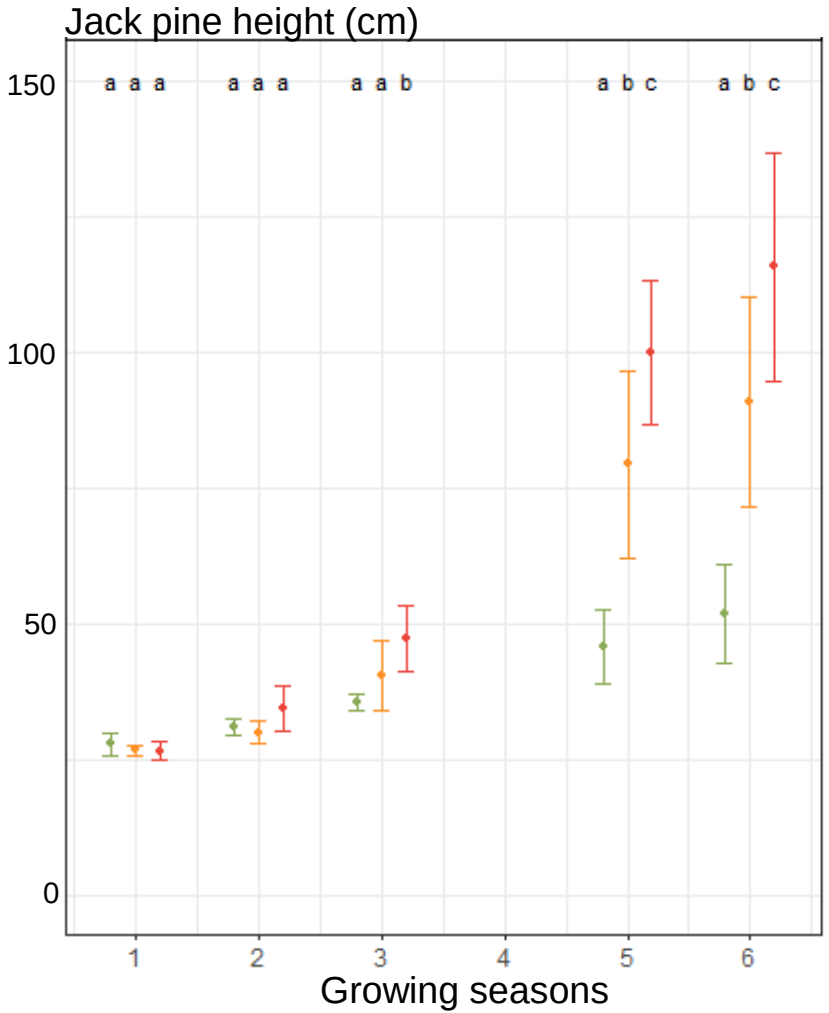
Maxime Paré, UQAC



Marty et al. (2020)

Reduce the stress to desired species

Thiffault and Hébert (2017)
Urli et al. (2020)

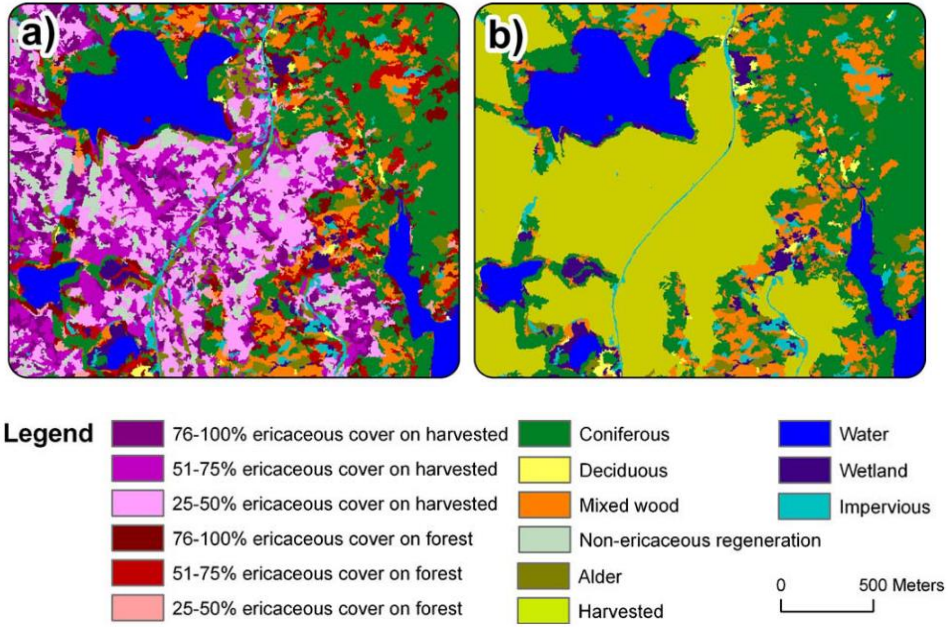


Transdisciplinarity

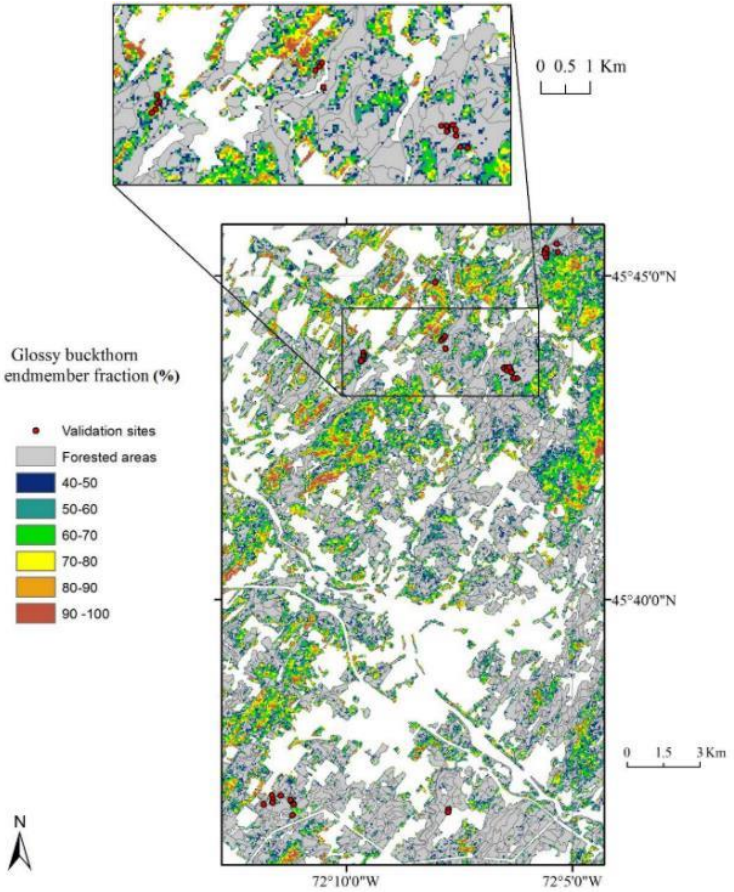
Engagement with society to facilitate multi stake-holder efforts in vegetation management

Bridge between social and vegegation management sciences

Continued development of remote sensing tools for vegetation management

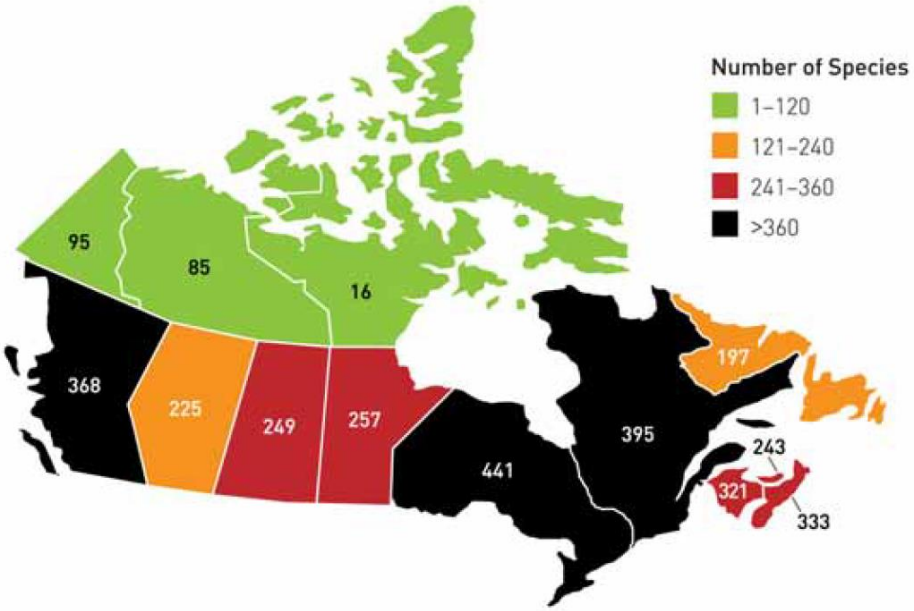


van Lier et al. (2009)



Labonté et al. (2020)

Plant ecology and invasiveness

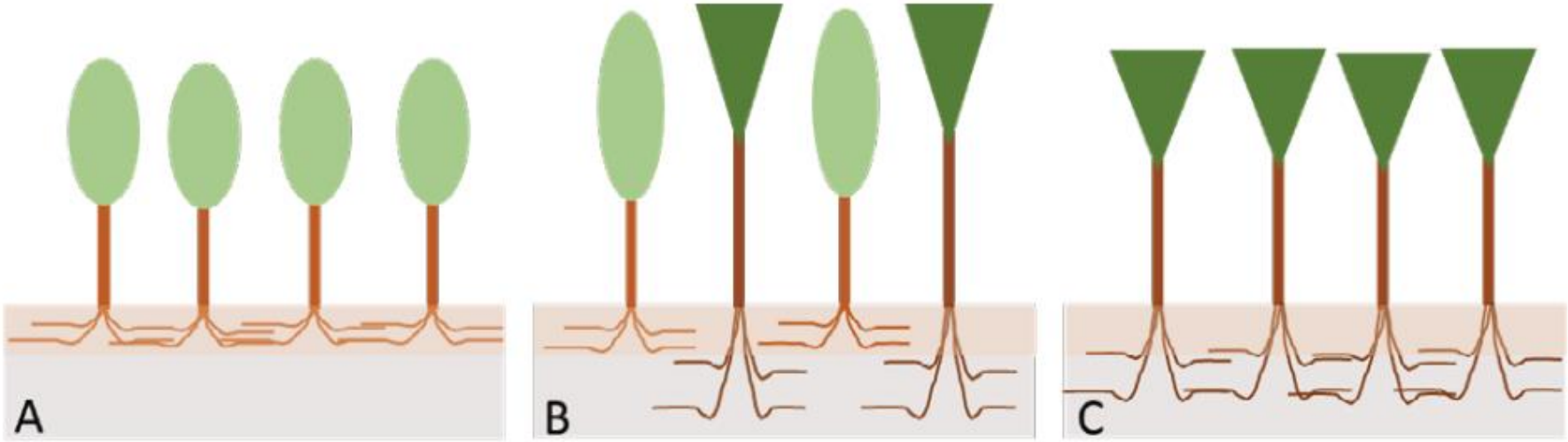


Note: Canada has 486 invasive alien plant species.

Source: Canadian Food Inspection Agency (2008)

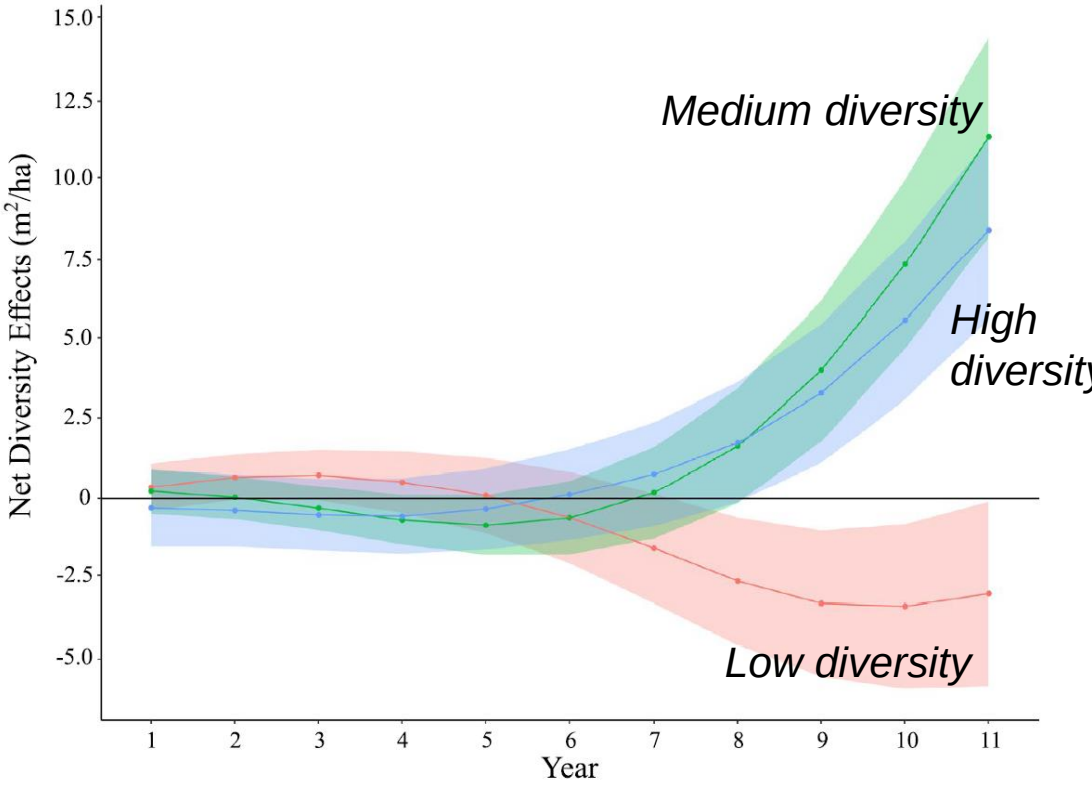
Integrate new ecological knowledge into vegetation management practices, including niche complementarity

Intégrer les plus récentes connaissances en écologie dans les pratiques de gestion de la végétation, incluant la complémentarité des niches



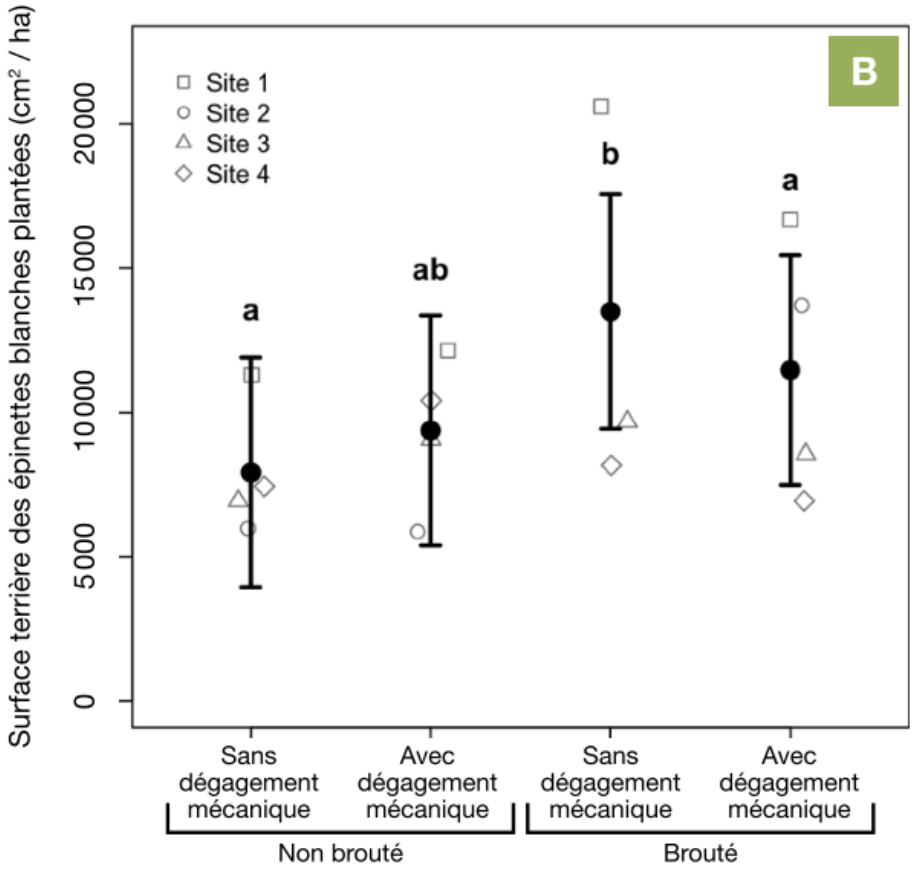
Adapted from Trogisch et al. (2021)

Source: Alain Paquette (@Paq_Al)

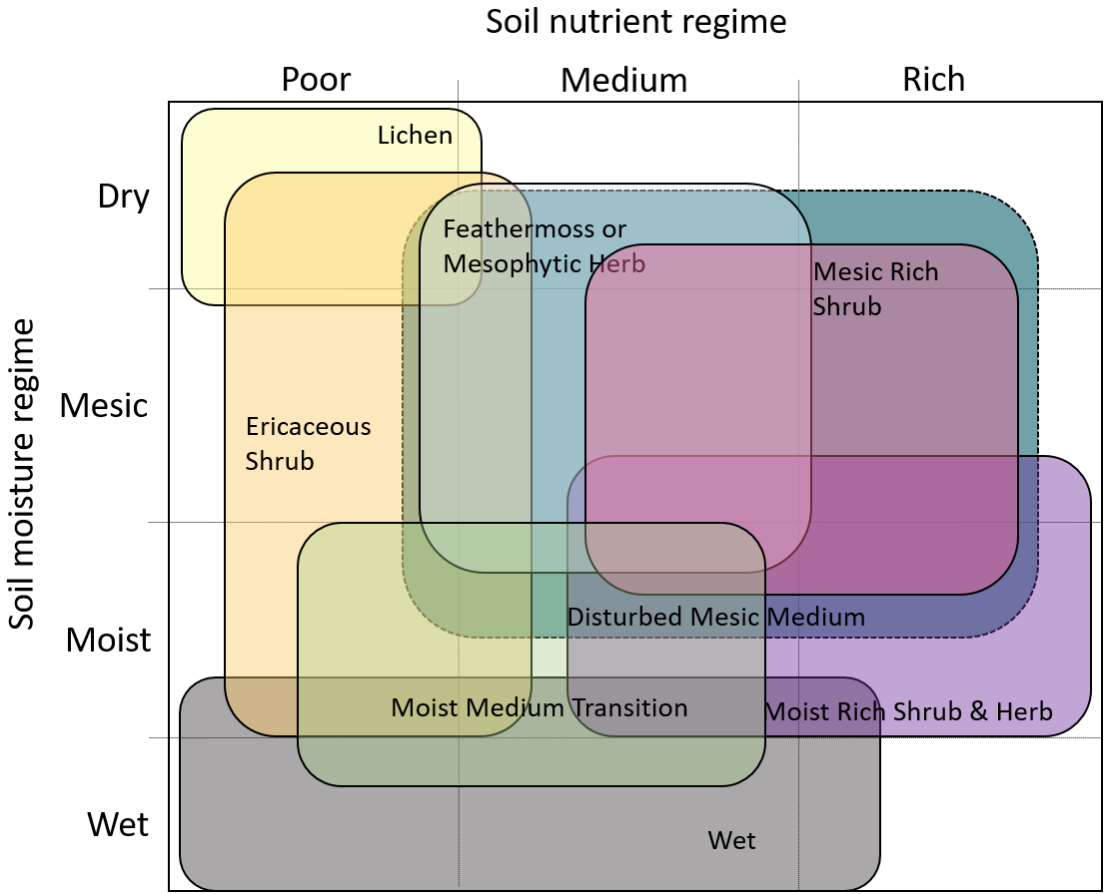


Urgoiti et al. (2022)

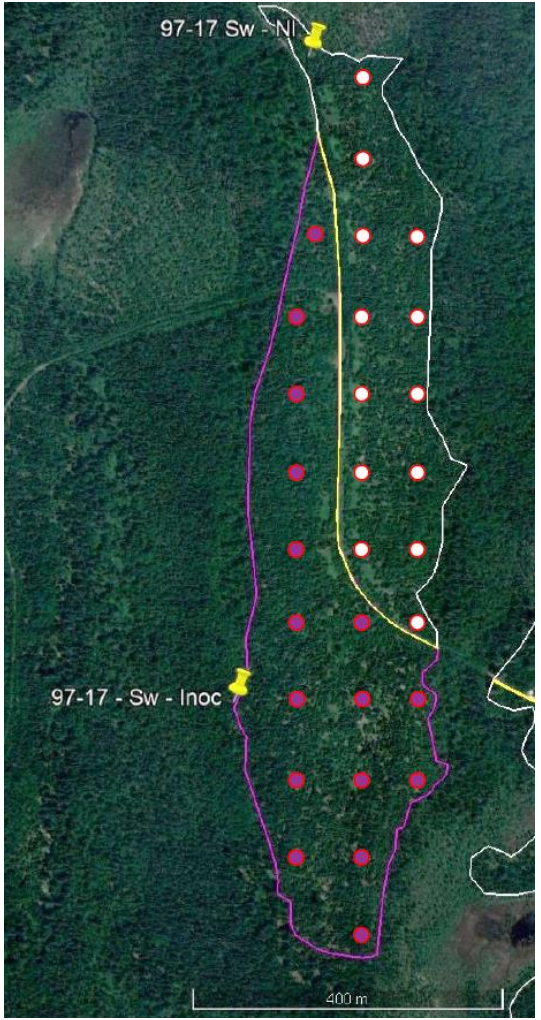
Interactions between vegetation management practices and browsing pressure by large herbivores



de Vriendt et al. (2020)



Chapman et al. In Press.



In conclusion, vegetation management is facing renewed and emerging challenge, but offers new opportunities

Develop forest vegetation management that is economical, minimises ecological impacts, maintains social licence to operate, and is effective

Forest vegetation management should enable adaptation to future environmental conditions, socio-political contexts, and vegetation dynamics

Vegetation management can be refined to promote species combinations that can maximize ecosystem productivity