

# Interactions plantes-sols et biodiversité végétale



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Université   
de Montréal



Institut de recherche  
en biologie végétale

Centre sur la biodiversité  
de l'Université de Montréal



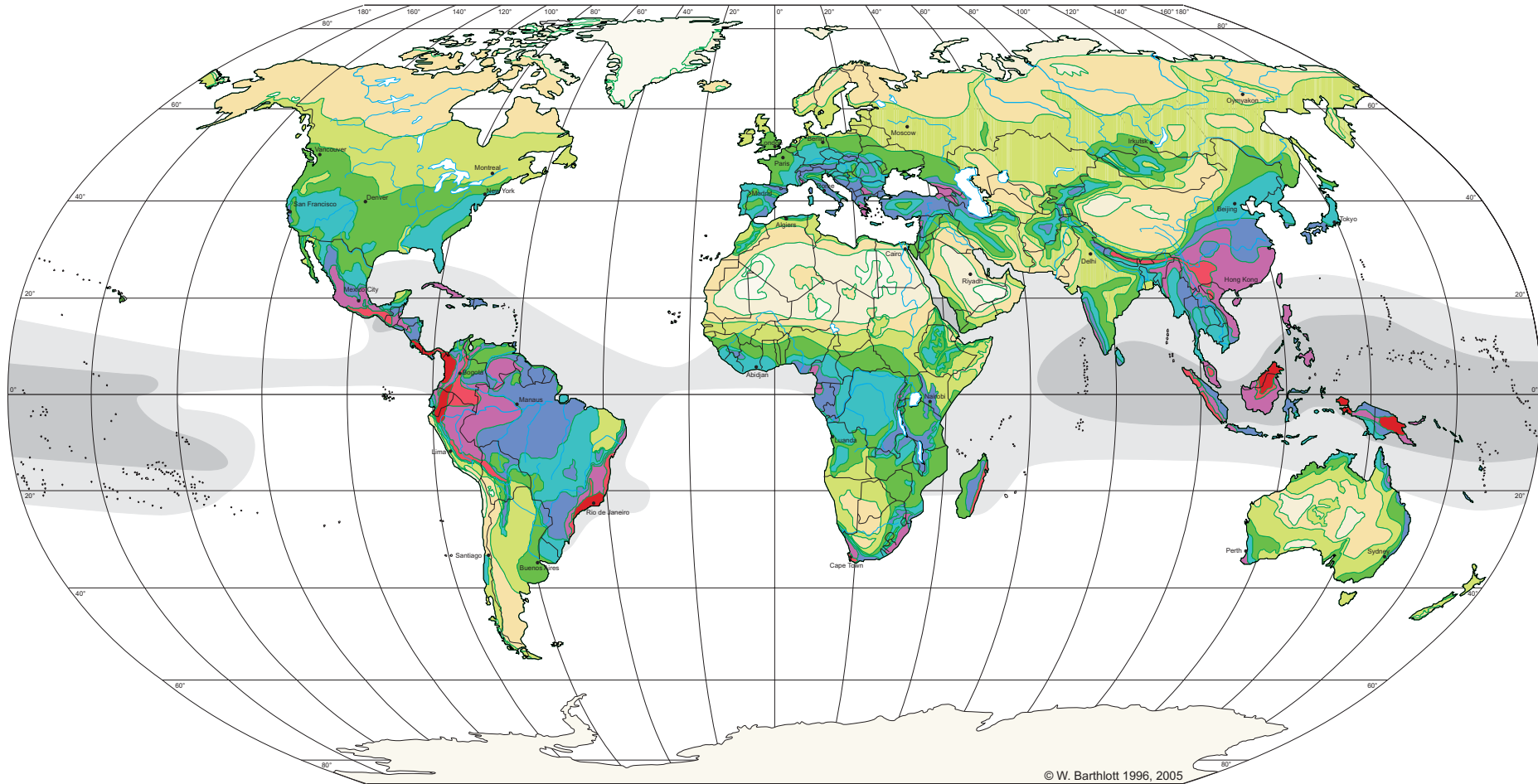
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# Biodiversité végétale

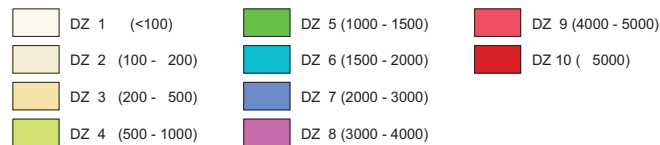
## GLOBAL BIODIVERSITY: SPECIES NUMBERS OF VASCULAR PLANTS



© W. Barthlott 1996, 2005

Robinson Projection  
Standard Parallels 38°N und 38°S

Diversity Zones (DZ): Number of species per 10 000km<sup>2</sup>



sea surface temperature

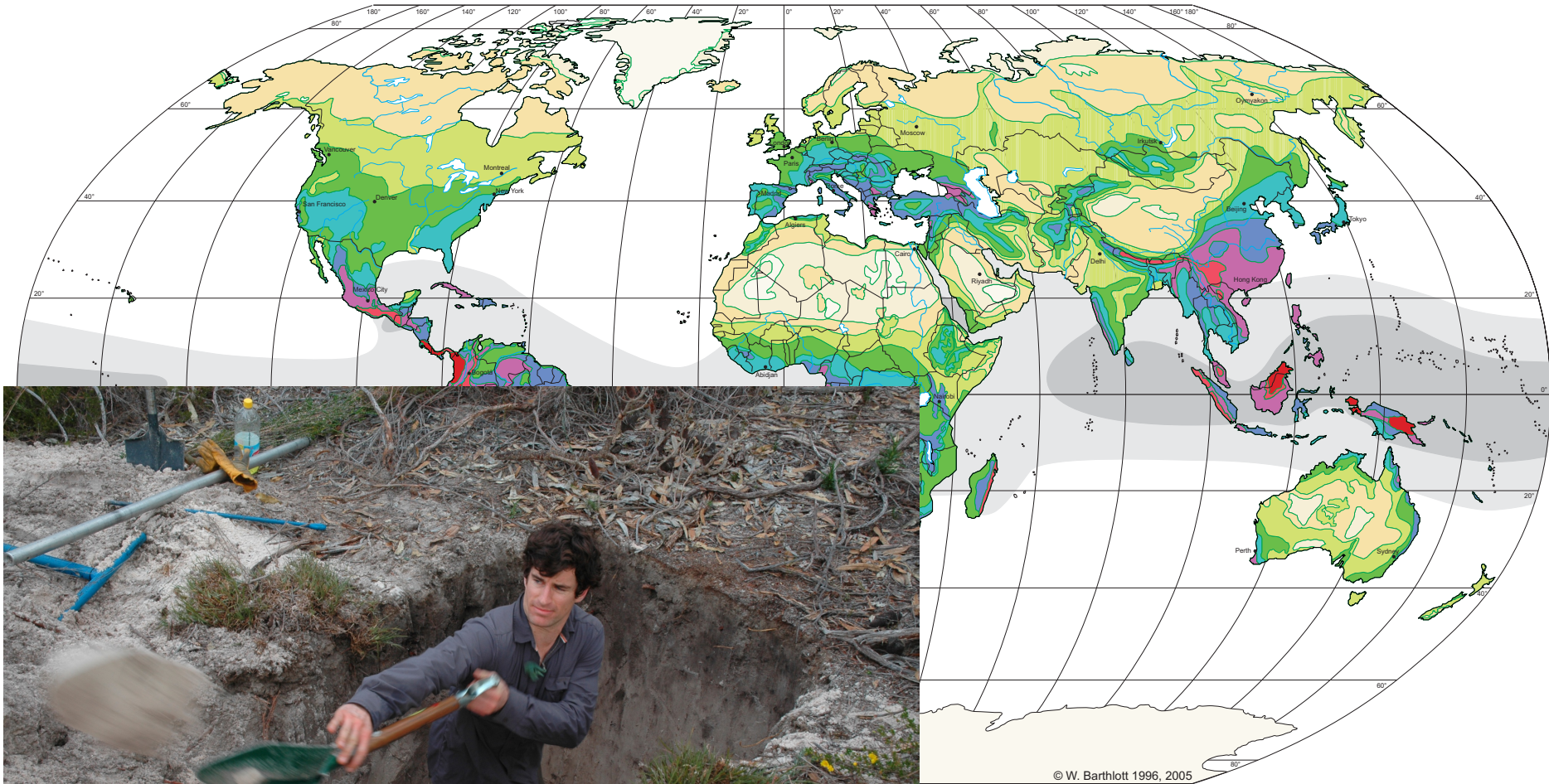


W. Barthlott, G. Kier, H. Kreft, W. Küper, D. Rafiqpoor,  
& J. Mutke 2005  
modified after  
W. Barthlott, W. Lauer & A. Placke 1996  
Nees Institute for Biodiversity of Plants  
University of Bonn



# Biodiversité végétale

## GLOBAL BIODIVERSITY: SPECIES NUMBERS OF VASCULAR PLANTS



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# Bassin d'espèces

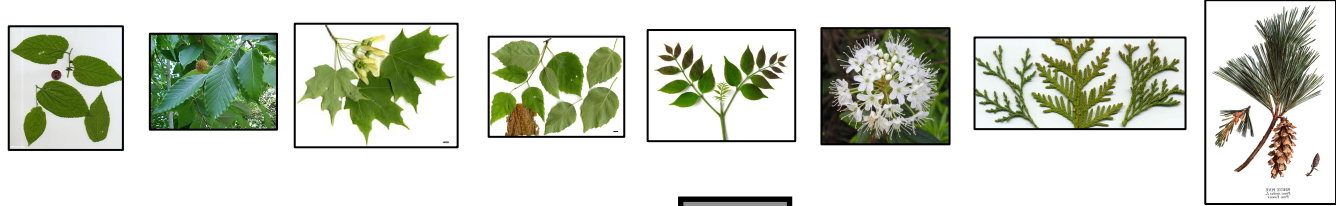
## 1) Variation fonctionnelle





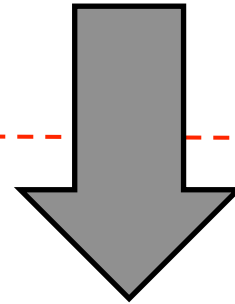
# Bassin d'espèces

1) Variation  
fonctionnelle



2) Traits  
fonctionnels et  
réponses  
communautés

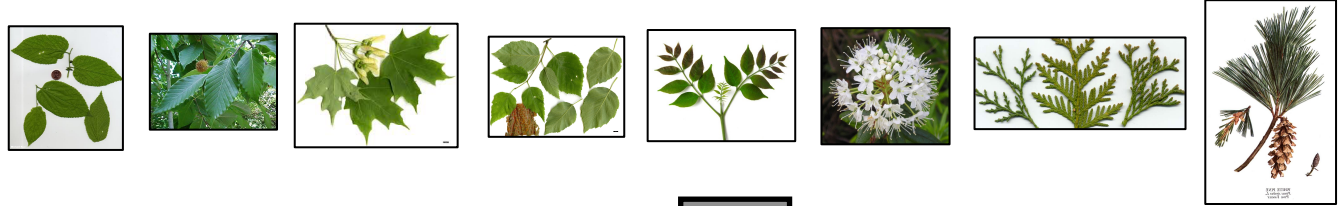
# Communauté locale



Filtre environnemental

# Bassin d'espèces

1) Variation fonctionnelle



2) Traits fonctionnels et réponses communautés

## Communauté locale

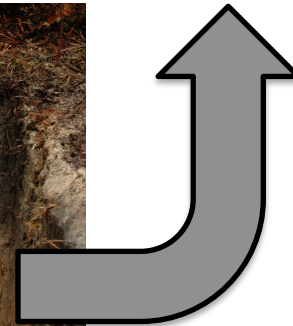
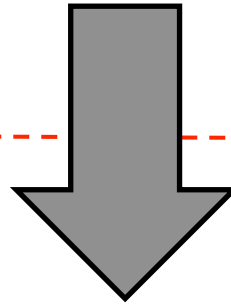


3) Interactions plantes-sols

## Sols

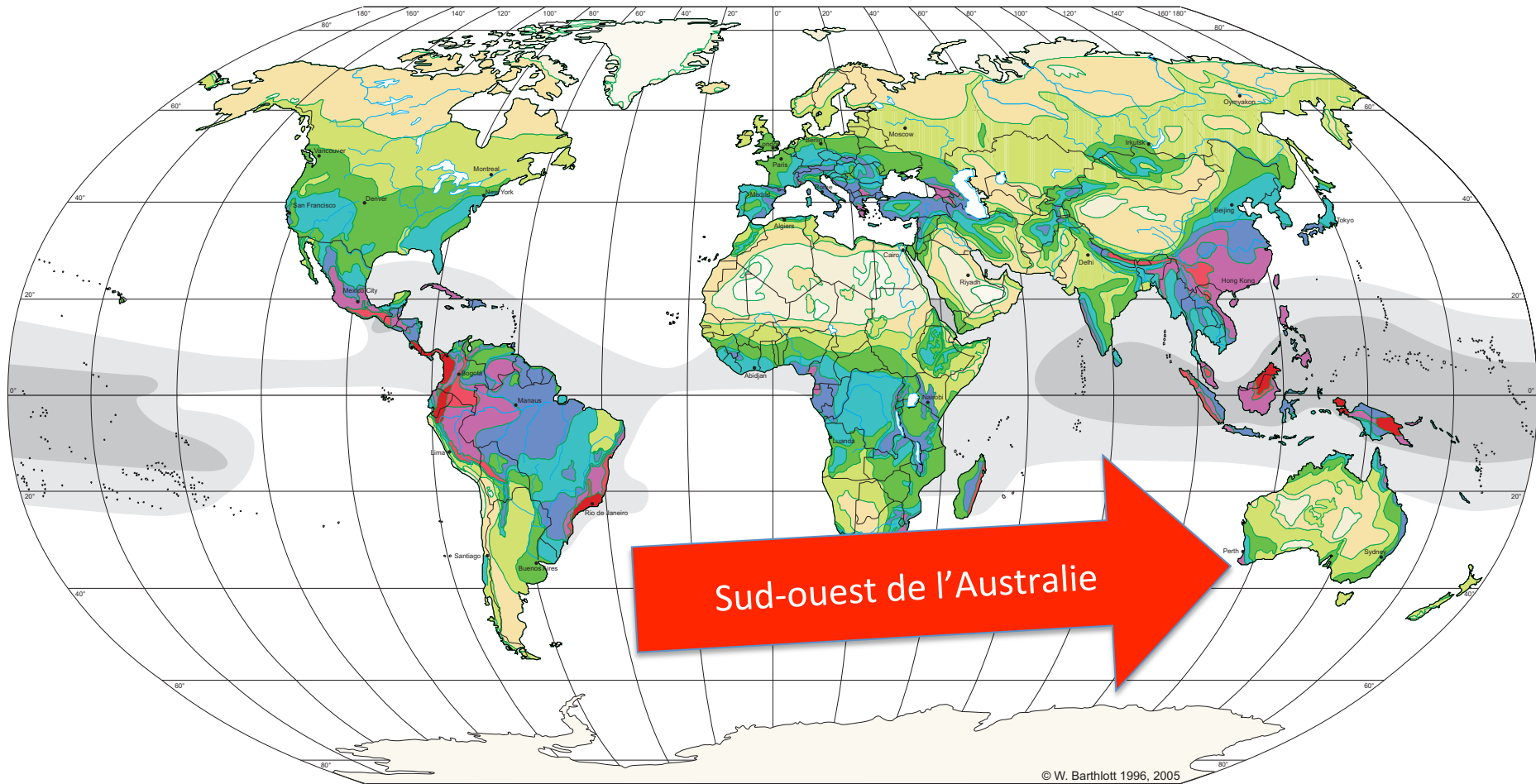


Filtre environnemental



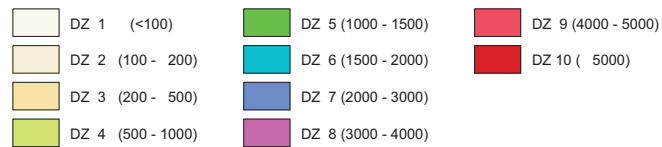


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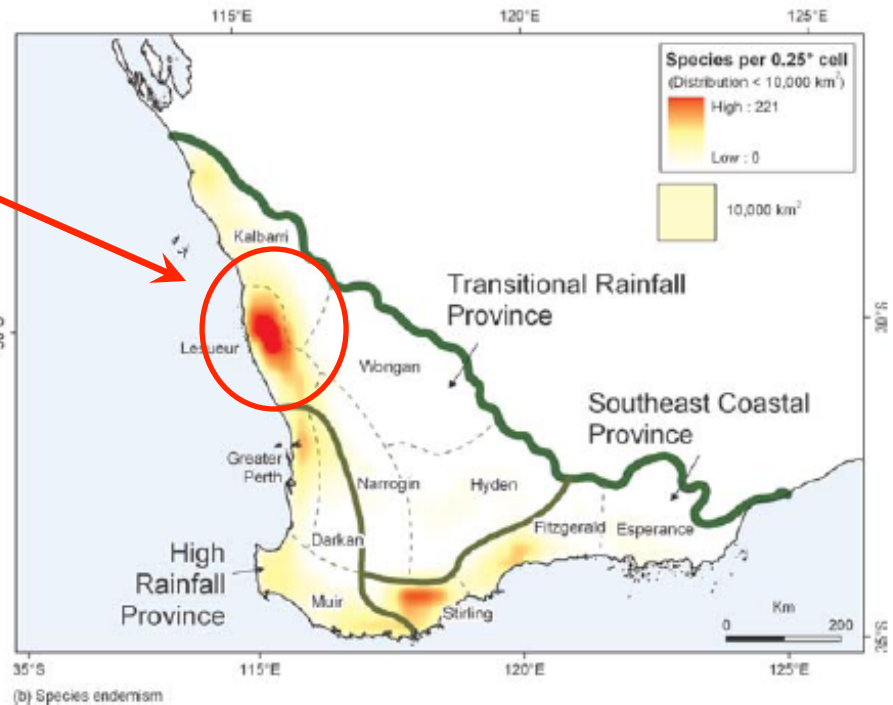
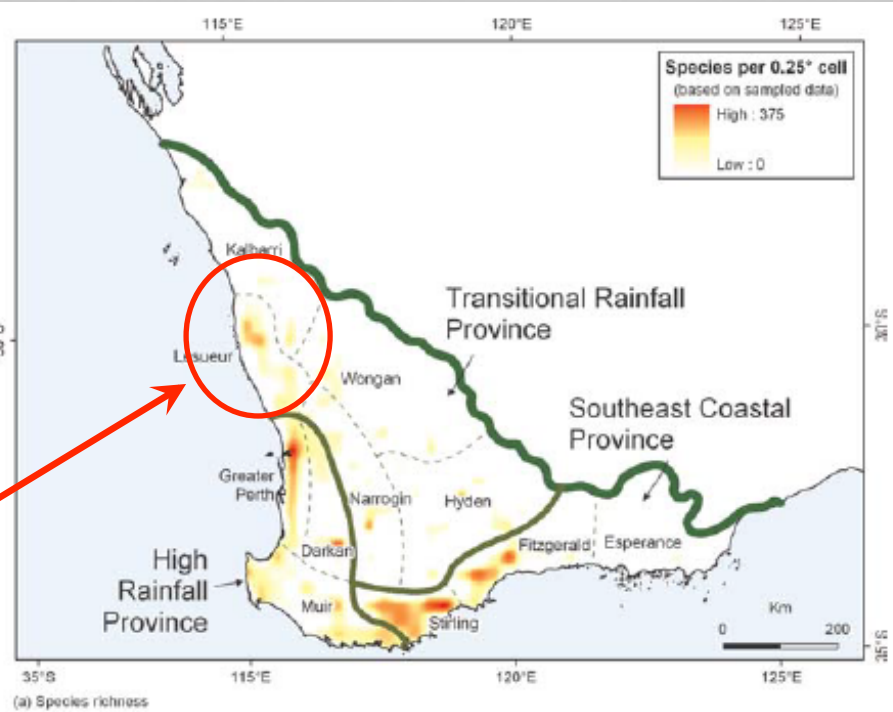
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# Chronoséquence de Jurien Bay, Australie occidentale

Point chaud de richesse et d'endémisme





# Chronoséquence de sols de Jurien Bay



0-7 ky {

120-500 ky {

>2000 ky {



# Chronoséquence de sols de Jurien Bay



0-7 ky

120-500 ky

>2000 ky





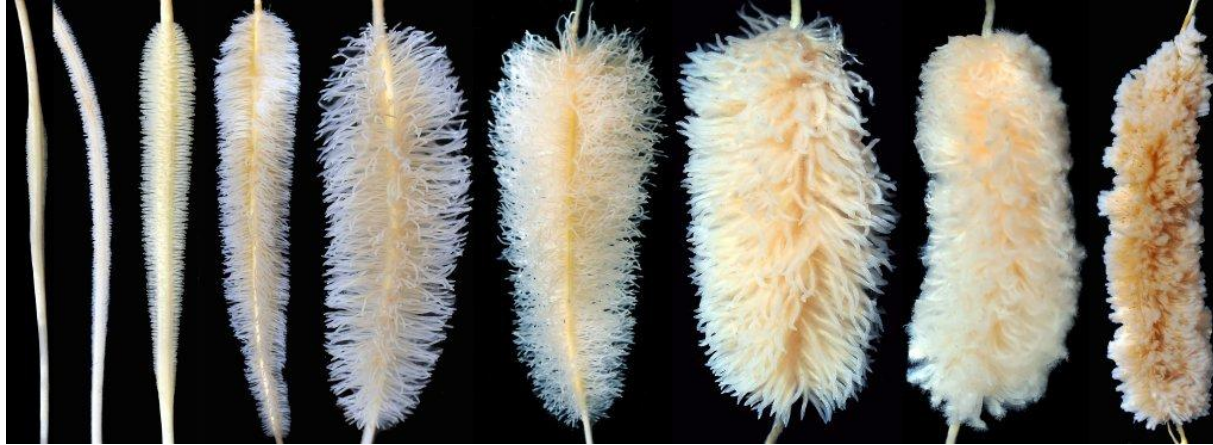
# Sols anciens: efficacité utilisation P

*Banksia menziesii* (Proteaceae)



- [P] extrêmement bas (300 ppm)
- 85% P remobilisé
- Longévité élevée (3-5 ans)
- Convergence fonctionnelle

# Sols anciens: diversité acquisition nutriments



Racines protéoïdes

Fixation N



Mycorhizes arbusculaires

Mycorhizes éricoïdes



Ectomycorhizes





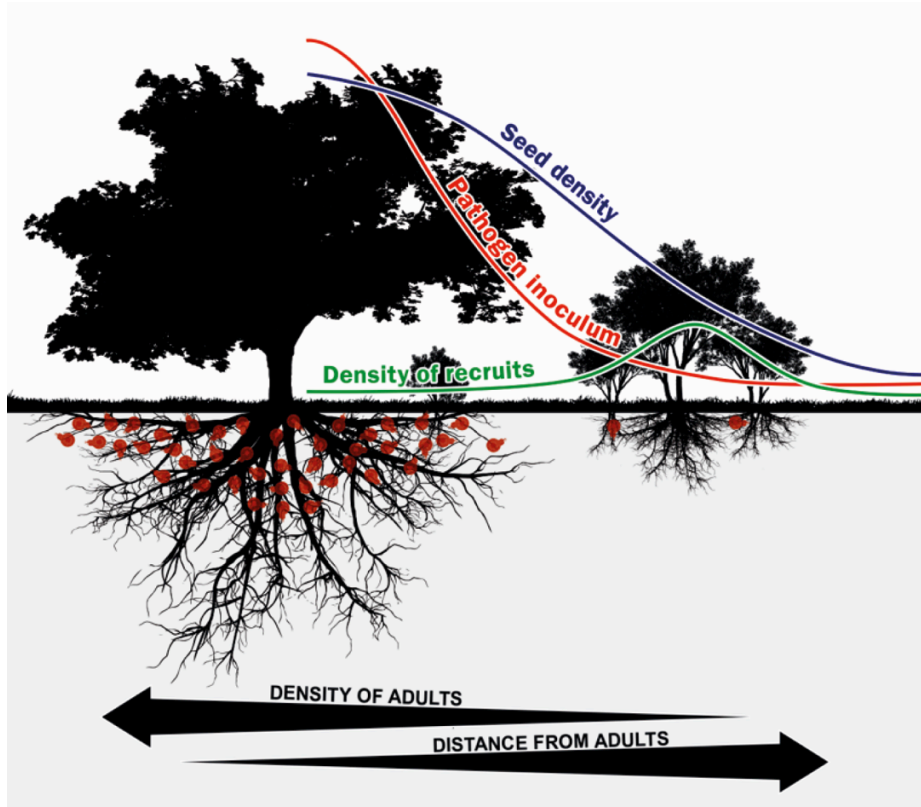
>40 espèces d'arbustes dans 100 m<sup>2</sup>!





# Non-mycorhizienne

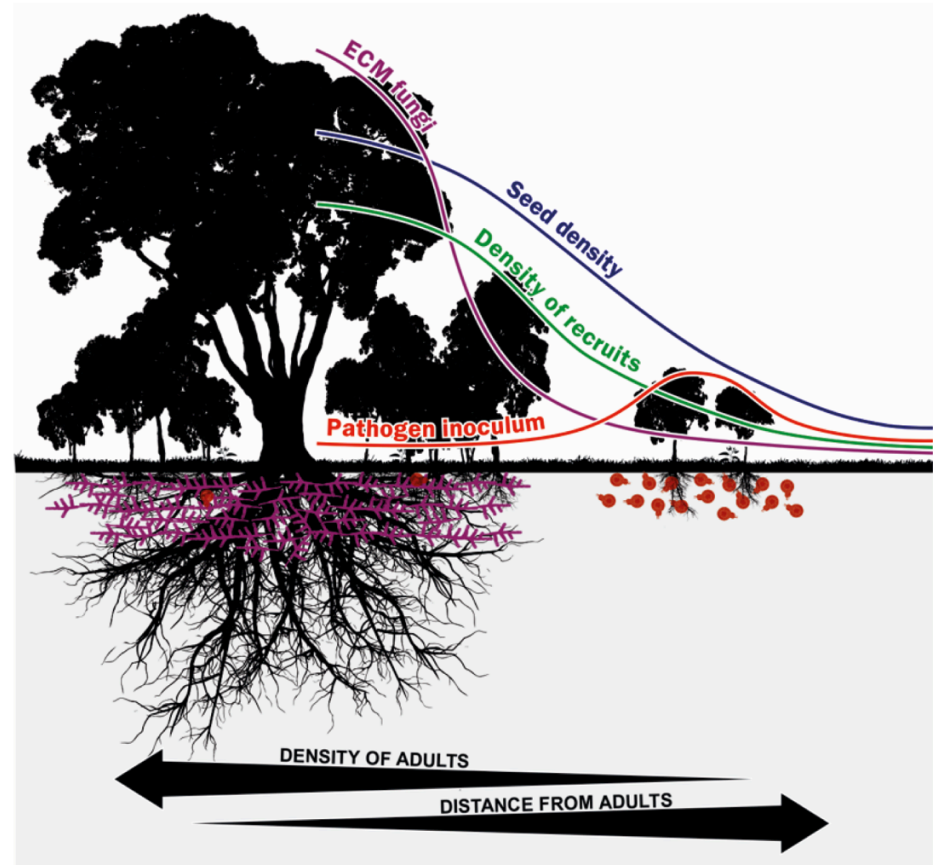
(a) Negative density dependence



Rétroaction négative

# Ectomycorhizienne

(b) Monodominance



Rétroaction positive

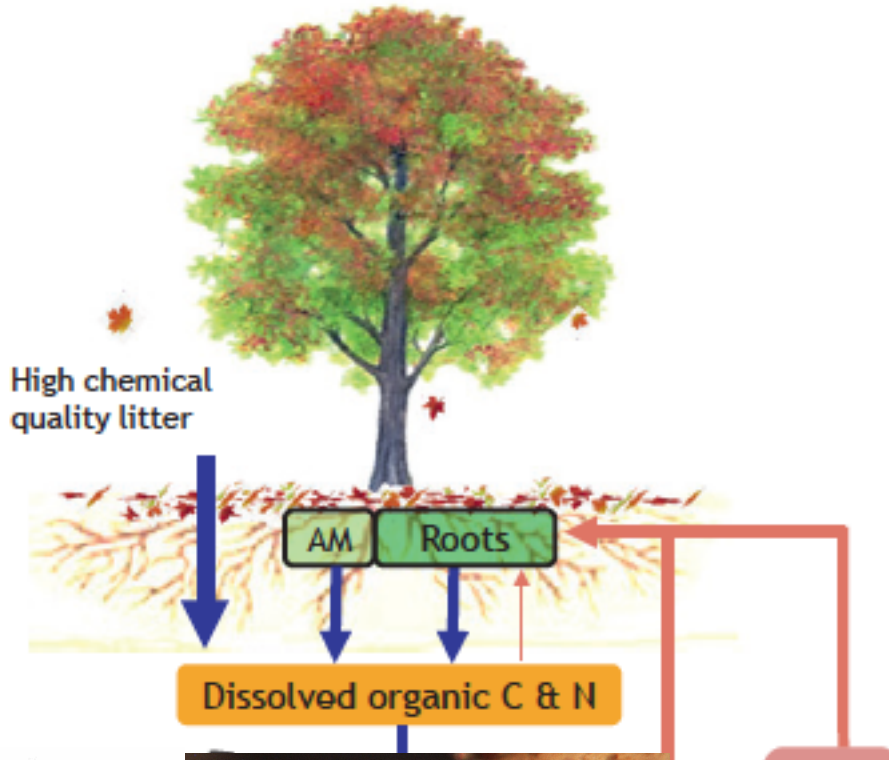
# Panama

Dr Benjamin Turner  
Smithsonian Tropical  
Research Institute

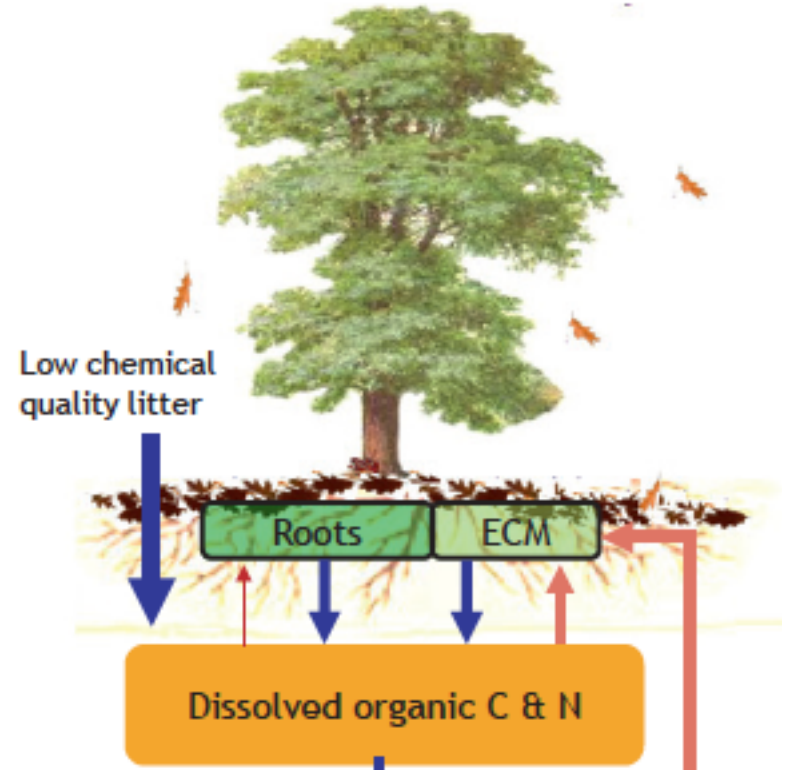




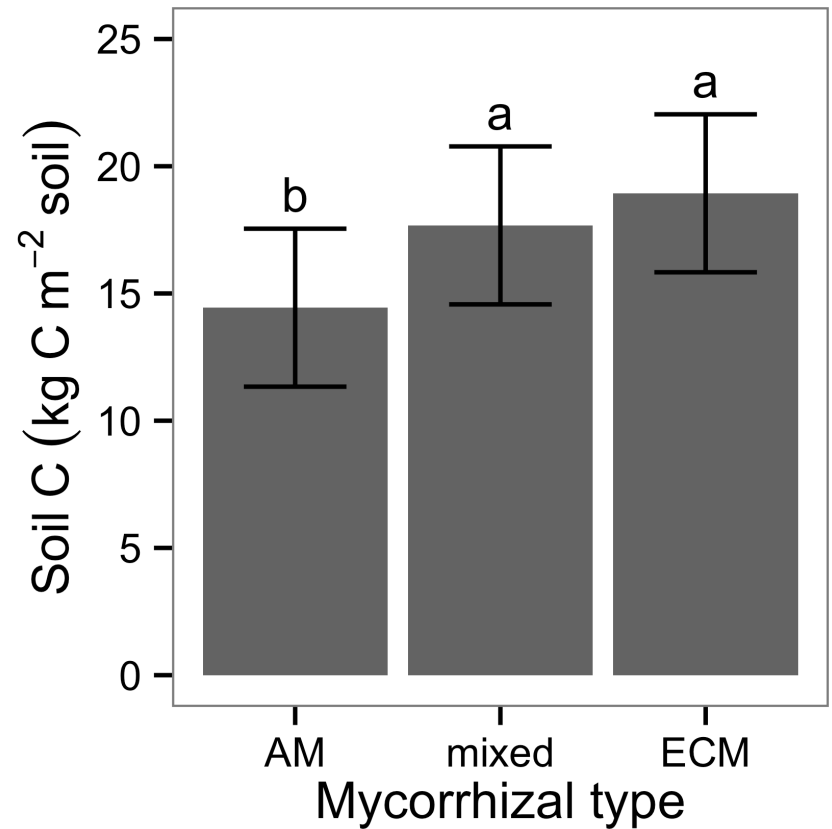
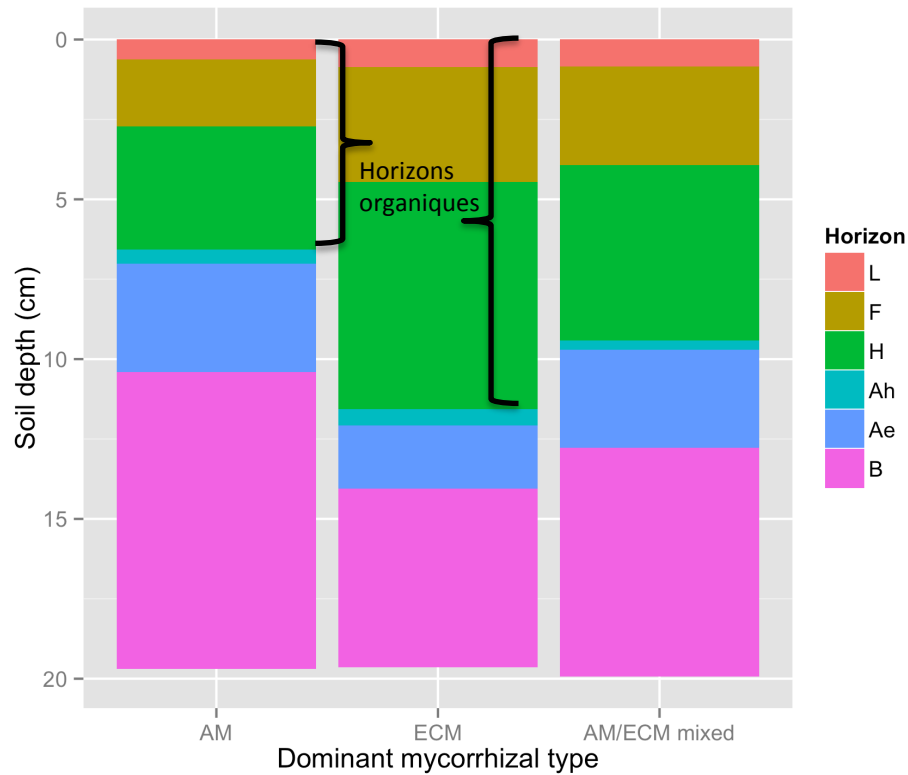
(a) **AM-dominated plots**  
Inorganic nutrient economy



(b) **ECM-dominated plots**  
Organic nutrient economy



# Mycorrhizes et décomposition?







*Acer saccharum*  
Mycorhizes arbusculaires



*Fagus grandifolia*  
Ectomycorrhizes



Facteurs édaphiques limitant  
expansion nordique de la forêt  
tempérée

Mont Mégantic



# Facteurs édaphiques limitant expansion nordique de la forêt tempérée

## Mont Mégantic



Mark Vellend, UdeS

Alexis Carteron (doctorant)



# Remerciements



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