

Utilisation des traits en écologie forestière

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Définition

Trait fonctionnel :

tout caractère morphologique, physiologique ou phénologique,
mesurable sur un individu, de la cellule à l'organisme entier



Violle et al. (2007) *Oikos*

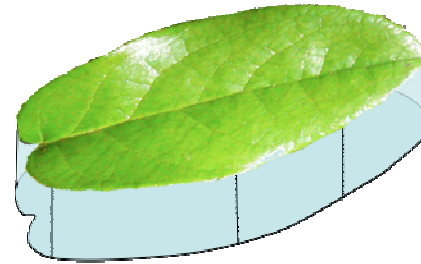
height

light capture
canopy position
longevity
dispersal height



specific leaf area

$$\text{SLA} = \frac{\text{leaf area}}{\text{leaf dry mass}}$$



metabolic rate
leaf life span
seedling growthC

seed size

regeneration mode
fecundity
dispersal

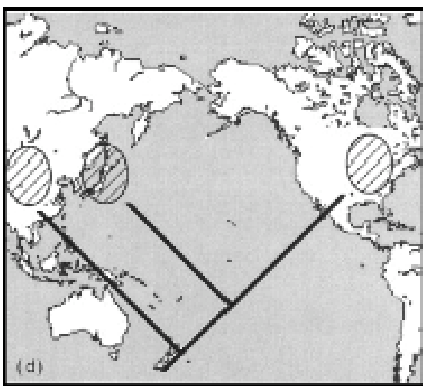


leaf size

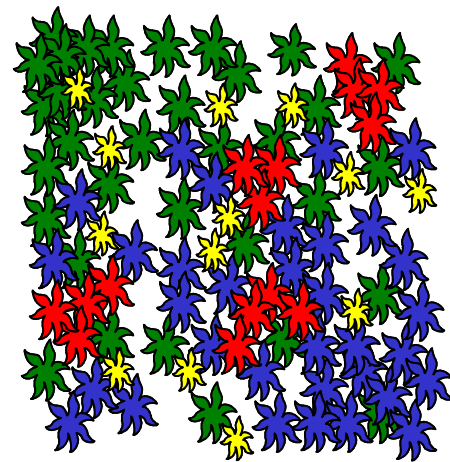
energy balance
hydraulic strategy
canopy allometry



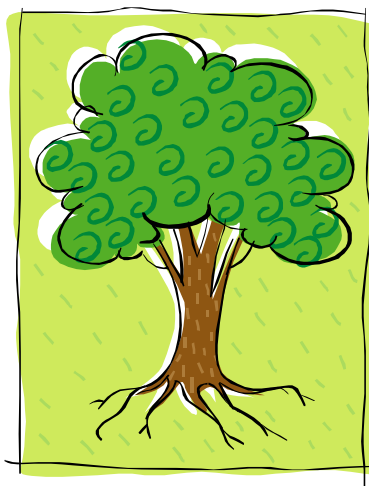
Biogéographie



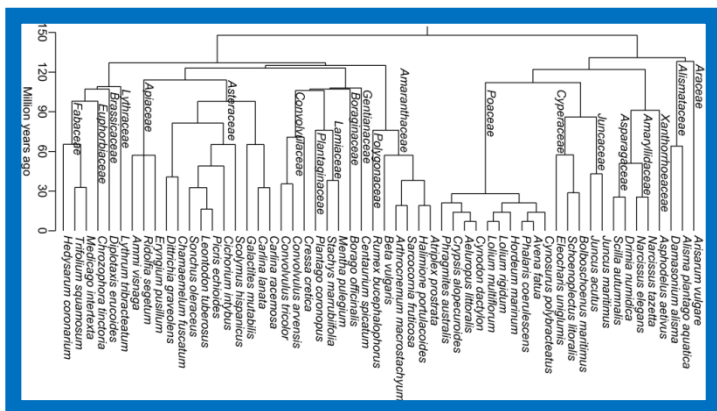
Assemblages



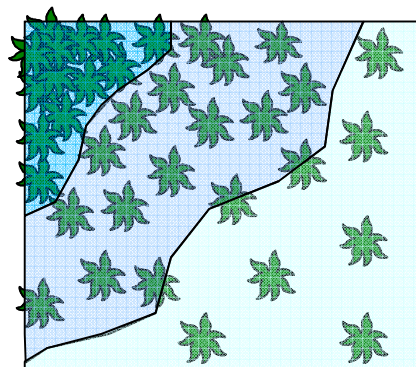
TRAITS

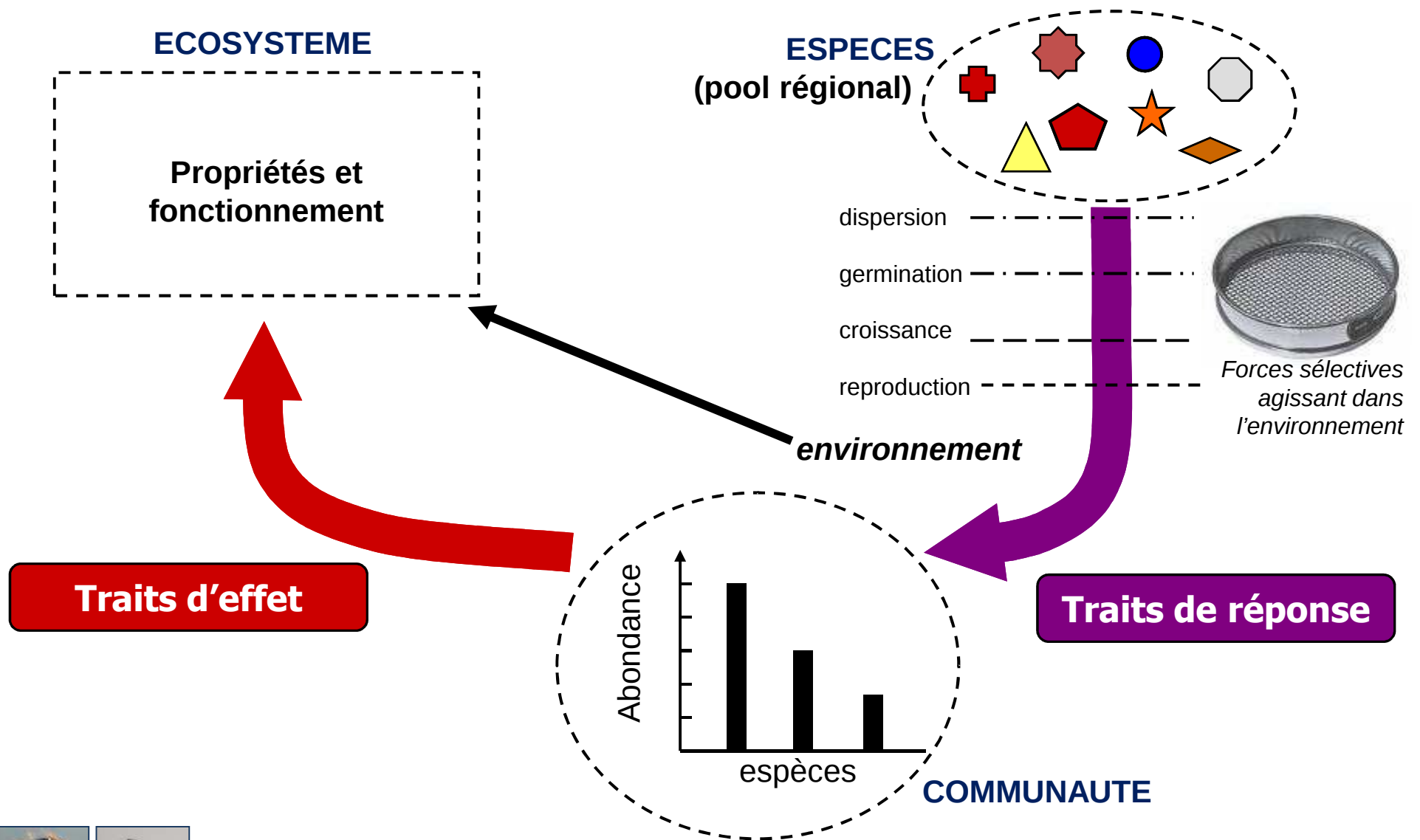


Phylogénie, adaptation



Gradients environnementaux



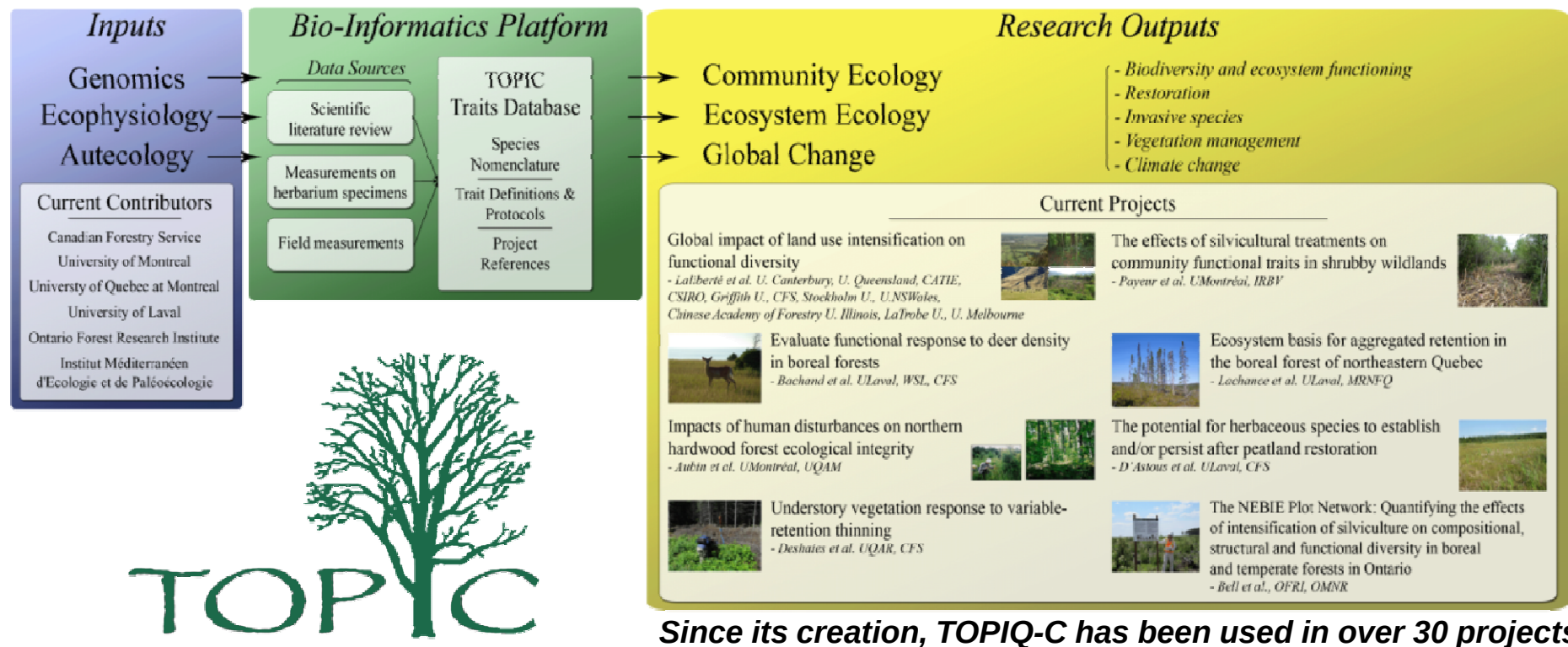


Lavorel & Garnier (2002) Funct. Ecol.

Bases de données de traits : un exemple

TOPIC database - structure, content and utilization

700 species, 42 documented traits



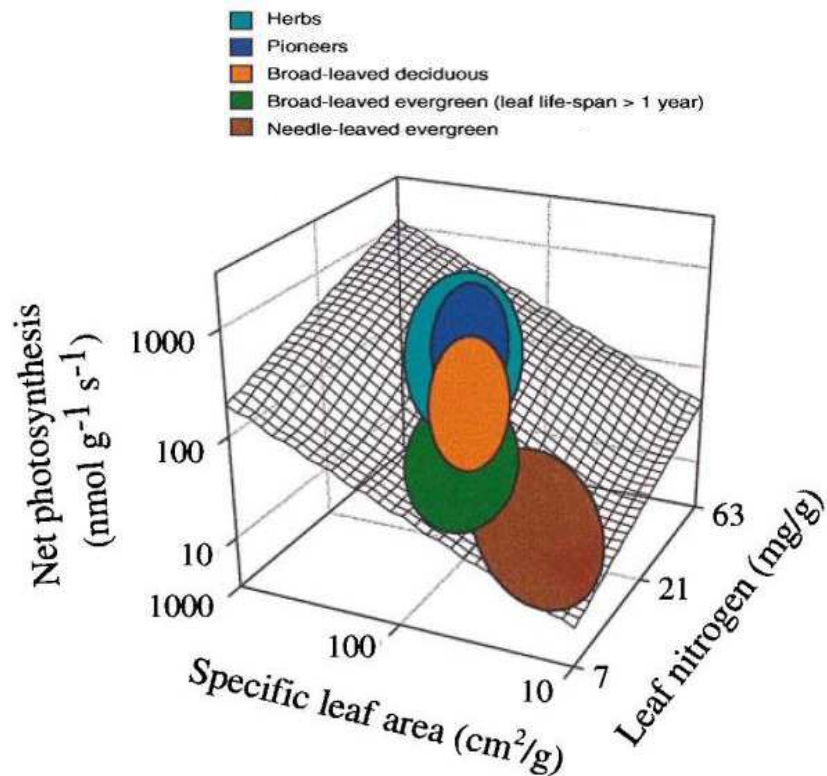
Since its creation, TOPIQ-C has been used in over 30 projects



Aubin, Gachet, Messier & Bouchard (2007) Ecoscience

Exemples

Physiologie

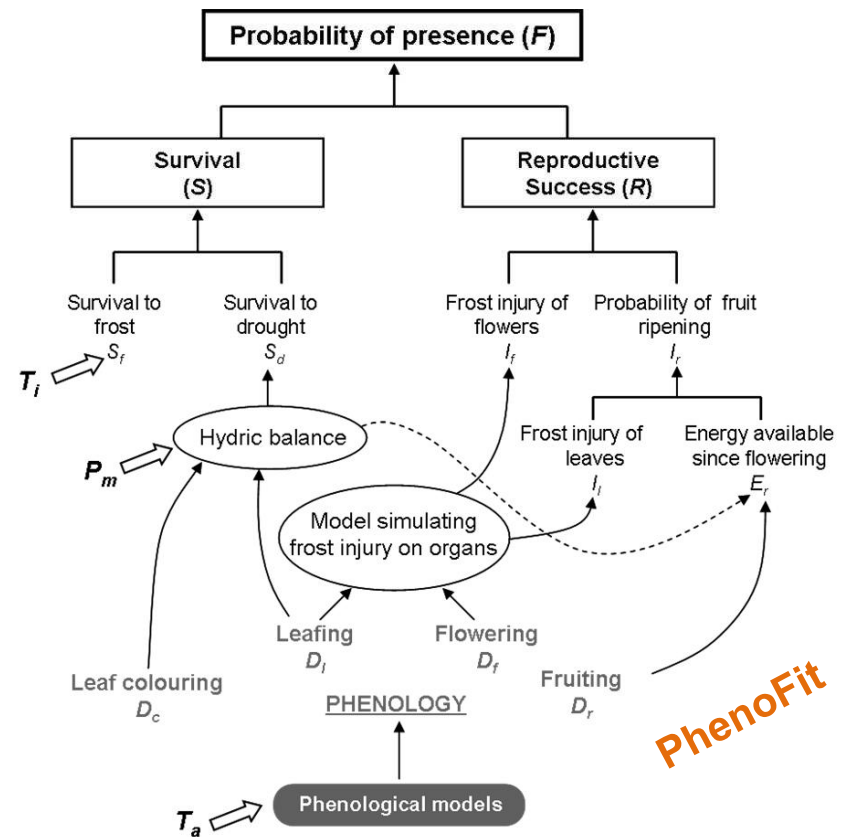


Leaf economic spectrum



Reich et al. (1997) PNAS

Phénologie, répartition...



Morin & Chuine (2005) GCB.
Morin & Chuine (2006) Ecol. Lett.



Exemples

Stockage du C dans le sol

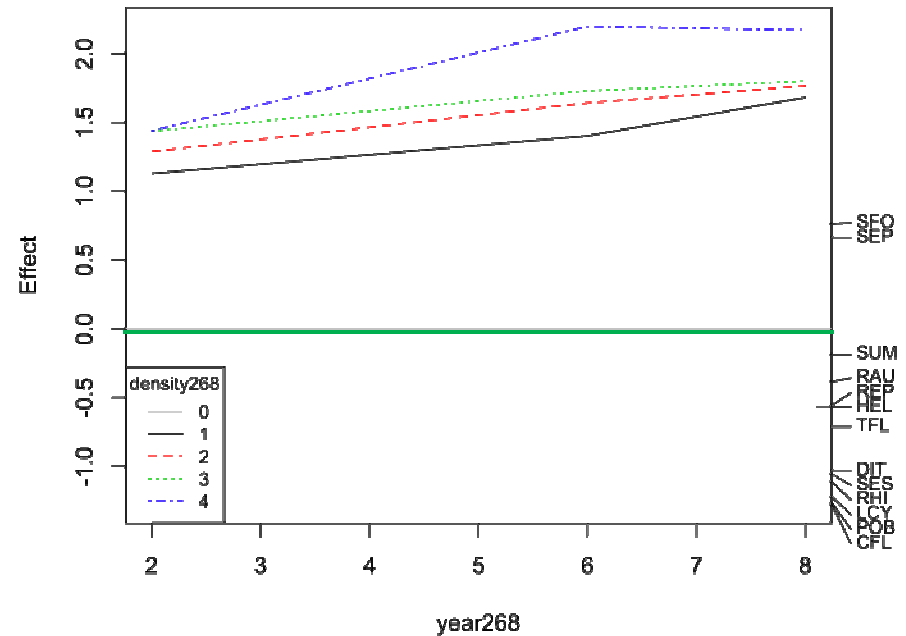
Traits that confer resilience or resistance to disturbance may contribute to sequestration in the long term:

- Resistance to herbivores
- Resistance to pathogens
- Shade tolerance



Hebert, Thiffault, & Munson (2011) Ecoscience

Herbivorie



Quand on diminue la densité de cerfs, les traits des herbacées se rapprochent de ceux des espèces d'une sapinière.



Bachand et al. (2012) in prep.

Examples

Succession

BIOTROPICA 42(1): 31–40 2010

Plant functional types of woody species related to fire disturbance in forest–grassland ecotones (Brazil)

Müller,
Overbeck,
Pfadenhauer &
Pillar

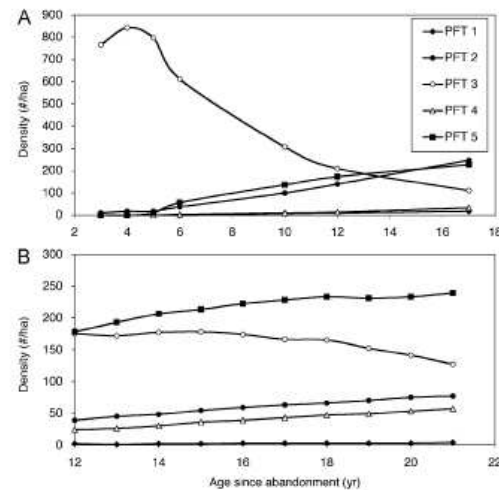


FIGURE 2. Changes in density of trees in five plant functional types in the (A) Arrozal plot over 14 yr and (B) LSUR plot over 9 yr.

Structure forestière

植物生态学报 2008, 32 (5) 1104-1115

Journal of Plant Ecology (Chinese Version)

伏牛山自然保护区森林生态系统乔木
植物功能型分类

胡楠 范玉龙 丁圣彦 卢训令

**CLASSIFICATION OF PLANT FUNCTIONAL
TYPES BASED ON DOMINANT TREE
SPECIES IN THE FOREST ECOSYSTEM AT
FUNIU MOUNTAIN NATIONAL RESERVE,
EAST CHINA**

Hu, Fan, Ding & Lu

Exemples

Régénération

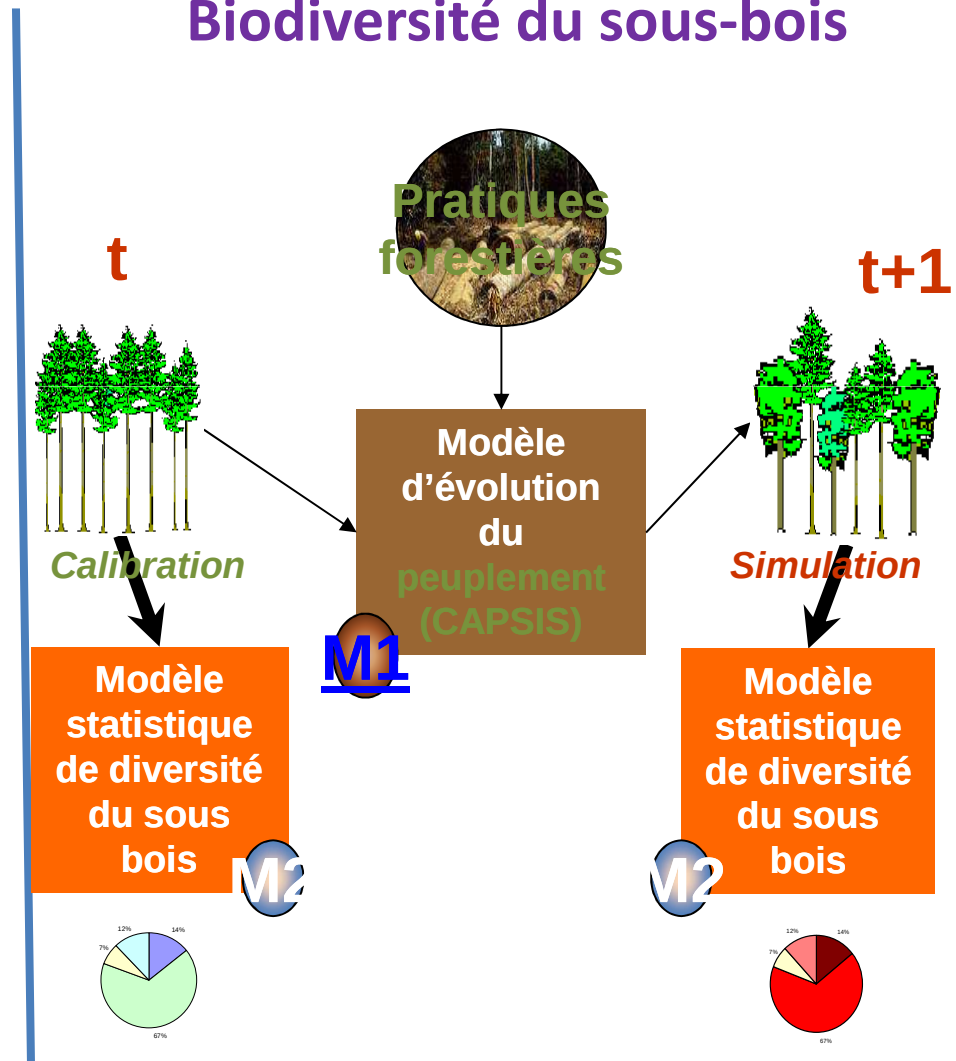
-Understory vegetation of boreal tree plantations: Differences in relation to previous land use and natural forests

Gachet , Leduc , Bergeron, Nguyen-Xuan, Tremblay (2007) FEM

-Can plantations develop understory biological and physical attributes of naturally regenerated forests?

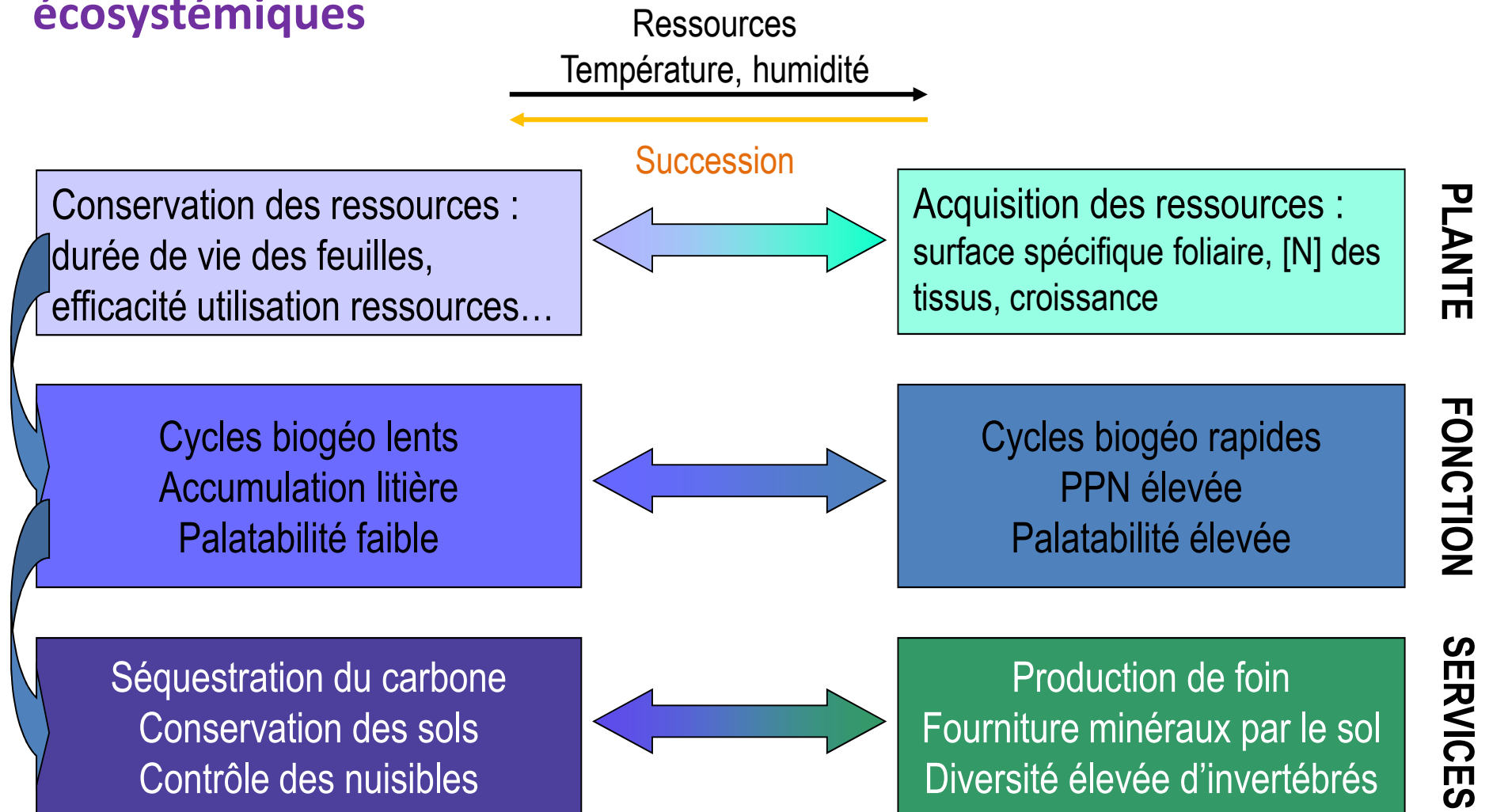
Aubin, Messier & Bouchard (2008) BIOC

Biodiversité du sous-bois



Exemples

Services écosystémiques

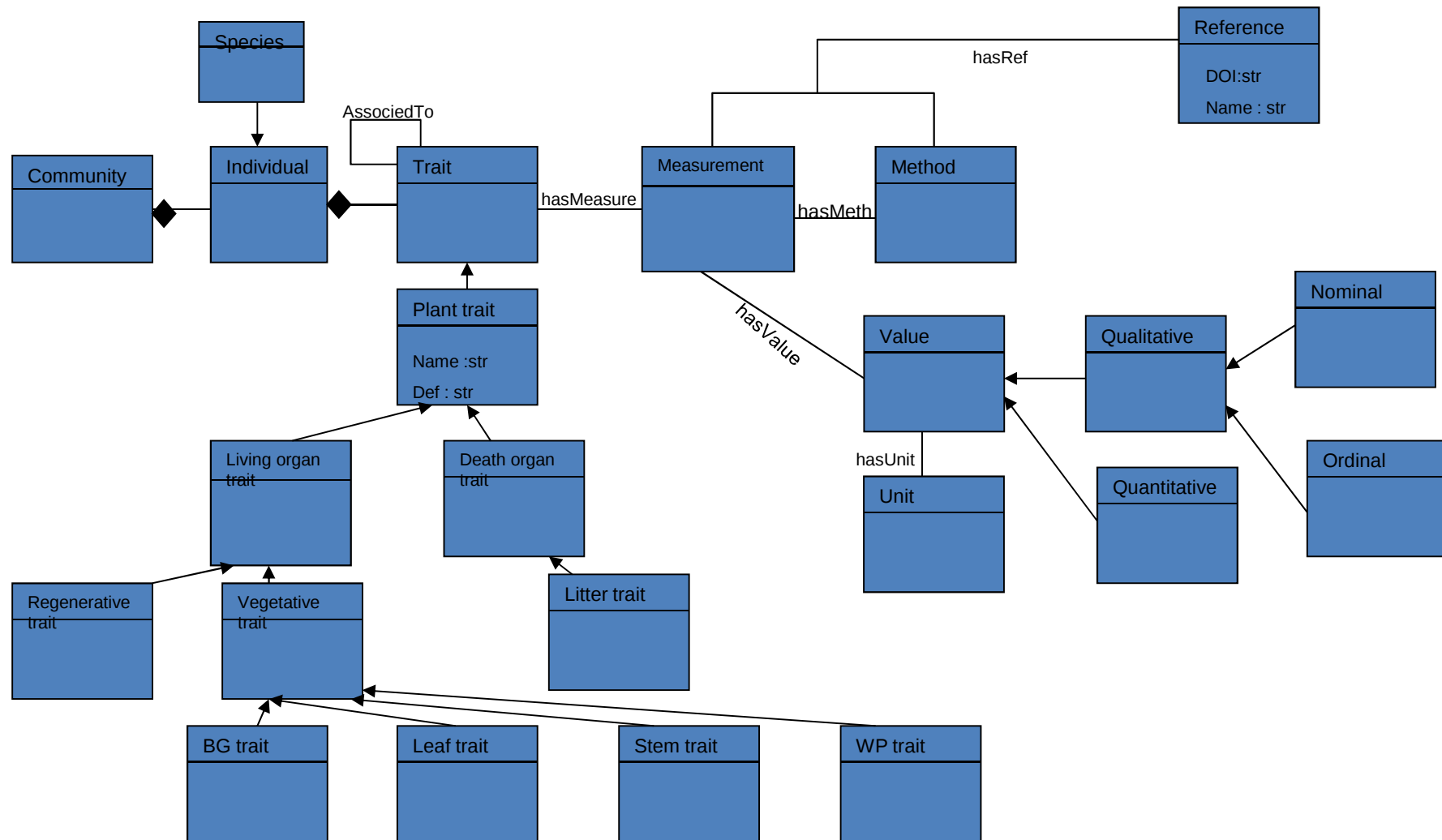


Ontologie des traits

- Ensemble structuré de concepts décrivant un domaine :
 - Concepts
 - Relations entre concepts (is_a, part_of, has_member,...)



OntoTraits



Formulaire : Validation des traits

Your email address:

Comments

Whole plant Leaf Stem Belowground Chemic composition Organ level Regenerative Litter

Specific leaf area (SLA)

Specific leaf area (SLA) Definition :

SLA is the one-sided area of a fresh leaf divided by its oven-dry mass, expressed in $\text{m}^2 \text{kg}^{-1}$ or in $\text{mm}^2 \text{mg}^{-1}$.

Are you : ☒ OK ☐ Not OK with the definition ?

Synonyms :

Synonym 1	
Synonym 2	
Synonym 3	

Related Traits :

Related trait 1	
Related trait 2	
Related trait 3	

Prefered Units : m^2kg^{-1}

Ecole des Traits 2012 : Porquerolles 15-20 avril

