LUBERON2 : a forest demo-genetic model to simulate the eco-evolutionary consequences of genetic diversity, disturbance regimes and management.

What is it ?

- It is a forest growth model with natural regeneration, stochastic disturbance regimes and genetic variation of quantitative traits related to growth, reproduction and survival
- It computes dendrometric, demographic and genetic variables to compare different scenarios of genetic architecture, genetic diversity, environmental conditions, disturbance regimes, and management scenarios.
- It simulates monospecific stands, even-aged or even-aged per patch, currently calibrated for five species: Atlas cedar, Silver fir, Douglas fir, Norway spruce, larch.
- It can be used with a user-friendly graphical interface, in french or in english, or in a script mode for intensive simulations.

What for ?

- For research on eco-evolutionary processes in natural and managed forests
- For the exploration and assessment of management options
- For teaching and training

How to use it?

- It is available upon request
- It runs on a PC (Windows, Macintosh or, Linux), with Java
- Further documentation at https://capsis.cirad.fr/capsis/help_en/luberon2

How to cite it?

- Godineau C, Fririon V, Beudez N, de Coligny F, Courbet F, Ligot G, Oddou-Muratorio S, Sanchez L, Lefèvre F (2023). A demo-genetic model shows how silviculture reduces natural density-dependent selection in tree populations. *Evolutionary Applications*, 16:1830–1844. https://doi.org/10.1111/eva.13606
- Fririon V, Davi H, Oddou-Muratorio S, Ligot G, Lefèvre F (2024). Can thinning foster forest genetic adaptation to drought? A demo-genetic modelling approach with disturbance regimes. *Evolutionary Applications*, 17:e70051. https://doi.org/10.1111/eva.70051

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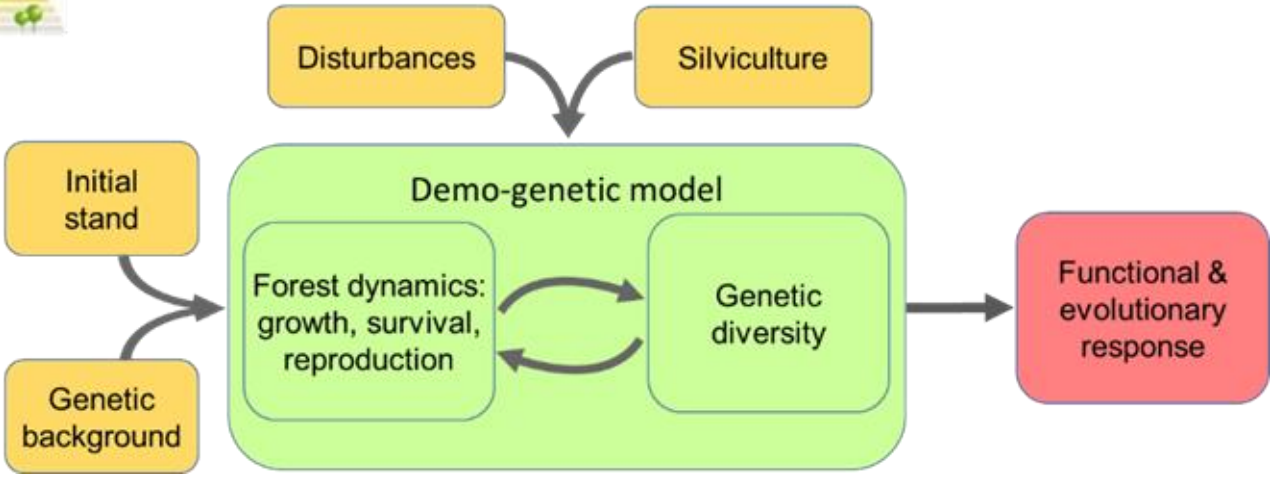
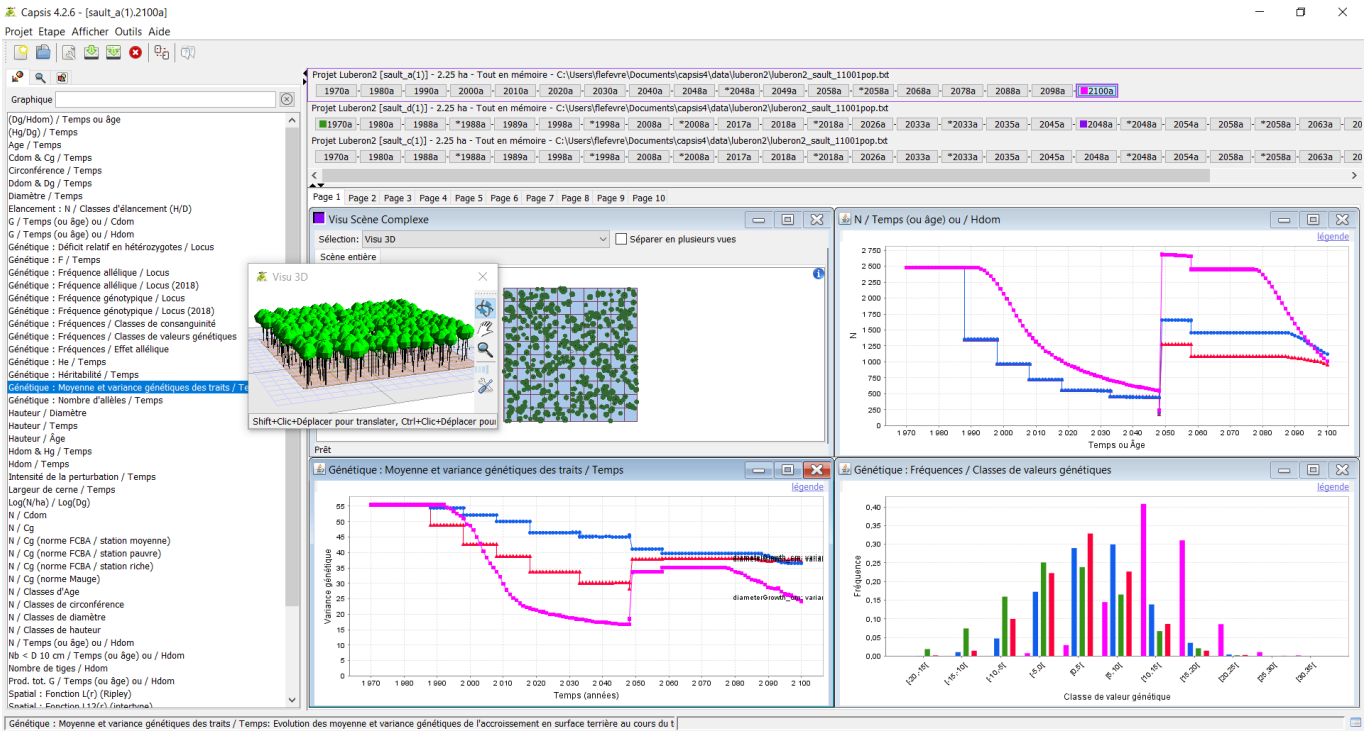

Disturbances
Silviculture
Initial stand
Genetic background
Demo-genetic model
Forest dynamics: growth, survival, reproduction
Genetic diversity
Functional & evolutionary response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Projet Etape Afficher Outils Aide
Visu Scène Complexe
N / Temps (ou âge) ou / Hdom
Génétique : Moyenne et variance génétiques des traits / Temps
Génétique : Fréquences / Classes de valeurs génétiques
Temps (années)
Classe de valeur génétique
Fréquence
Variance génétique
Temps ou Âge