

A Capsis quick tutorial

Create a Mountain project, build interactively a silvicultural scenario, compare various interventions.

fc, September 2013

This is an example of use of Capsis and the Mountain model (Benoit Courbaud, Irstea Grenoble, France)

Launch Capsis (*)

New project > Mountain

We use the Virtual stand feature to simulate a spruce stand with 300 stems.

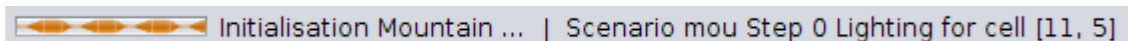
Virtual Stand > Diameter & Height
Diameters > Gaussian Distribution
Number of trees: 300
Mean D: 30
Standard error: 7
Heights > Gaussian Distribution
Mean H: 25
Standard error: 5

Virtual Stand > Spatial pattern
Neyman Scott
Number of aggregates: 50
Radius: 10

Regeneration
Time between seedling episodes 7 years
Seedling surface: 25%

Have a look at the other parameters for Growth, Crowns, Death, Plot, Light, Perturbations, but keep the default values

Hit the Ok button.



The scene is created and a radiative balance is run, check the progress bar at the bottom.

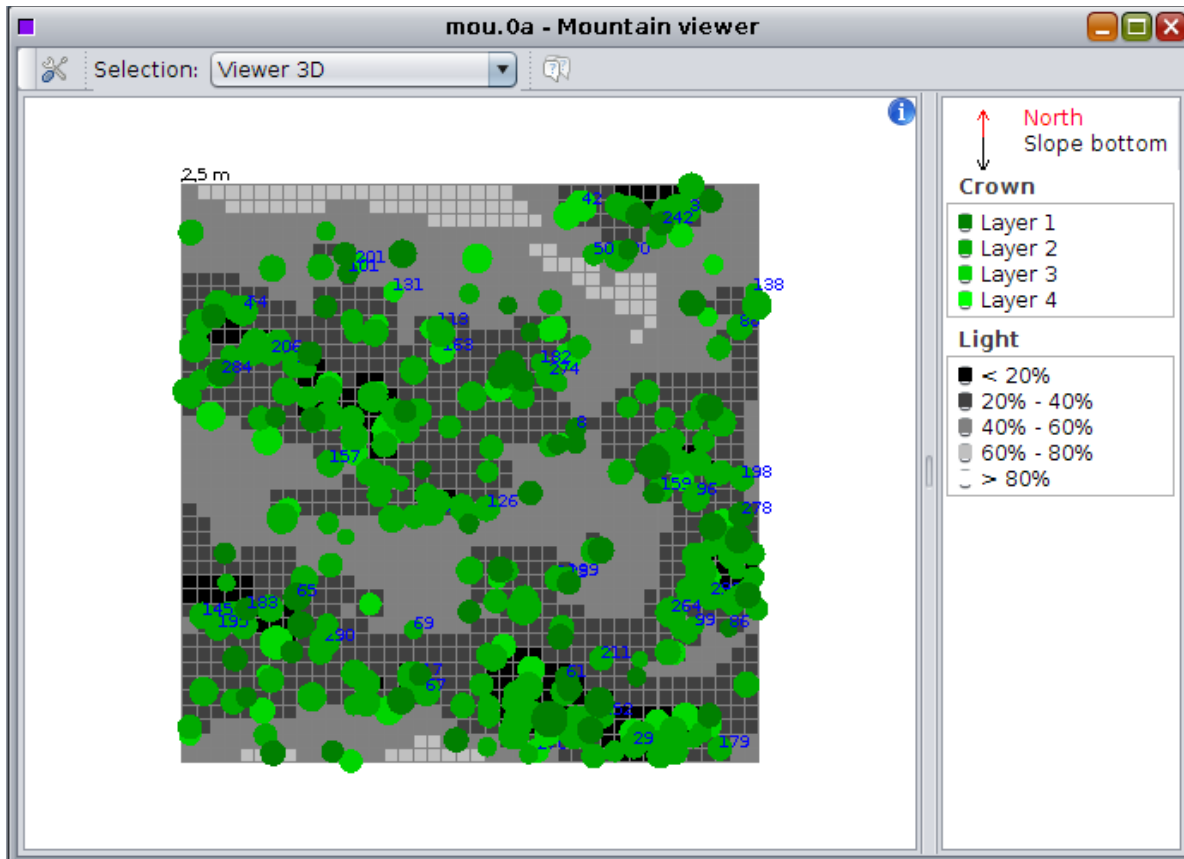
Project Mountain [mou] - 1 ha - All in memory - simulated

0a

A project opens in the ProjectManager, with the model name, the project name and the surface of the plot. Each step has a date. This is first step of scenario a.

Open a StandViewer

In Capsis' lateral bar, choose the Viewers tab
Double click on 'Mountain Viewer'



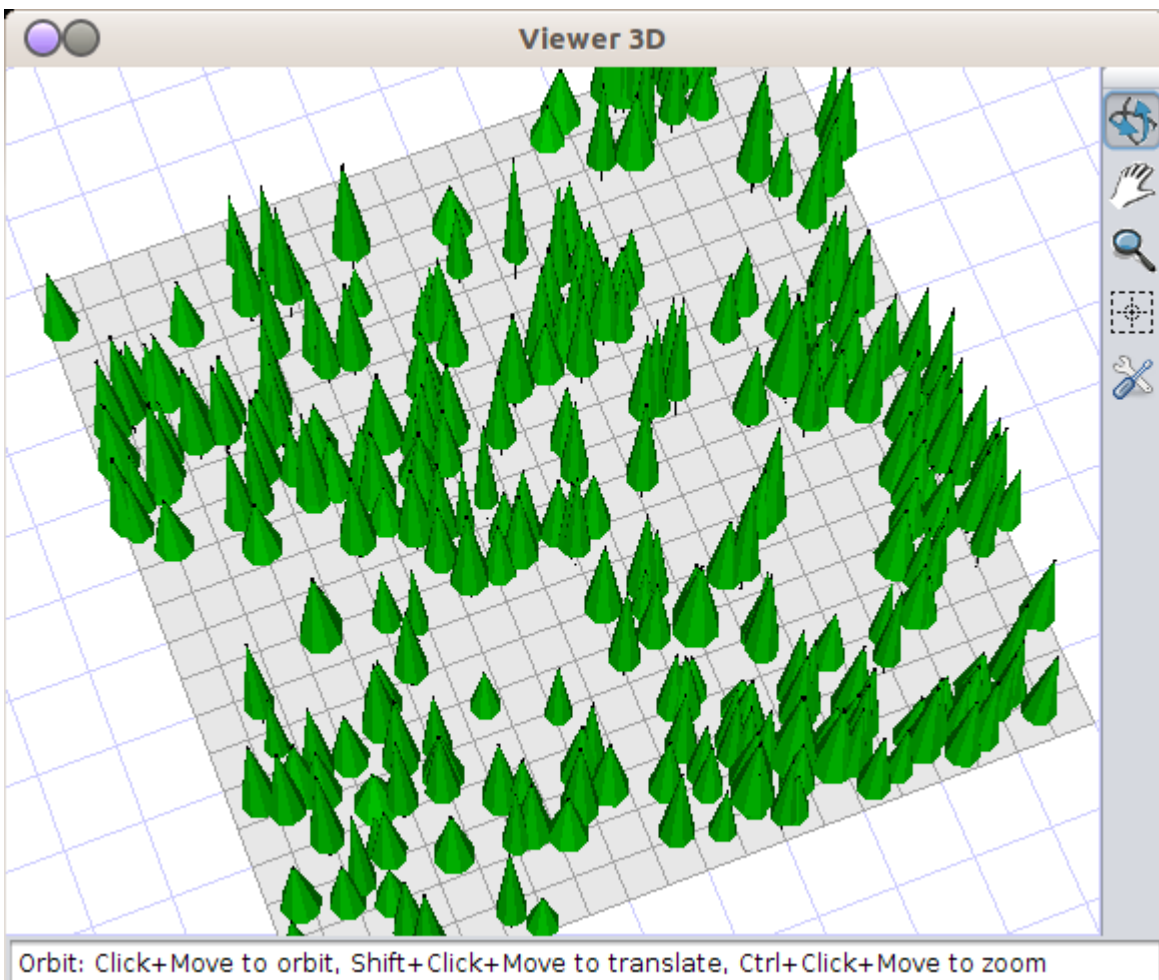
The Mountain Viewer is dedicated to the Mountain model. The trees are drawn from the top, 4 green colors indicate 4 height layers, a gray gradient shows the light received by each cell on the ground.


Zoom in the scene

Draw a selection rectangle with the left button of the mouse
Right click in the drawing to zoom out

Open the 3D view

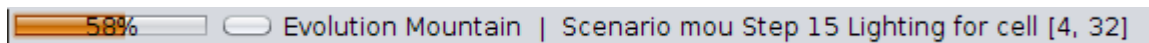
In the Selection combo box, choose Viewer 3D
Draw a selection rectangle with the right button of the mouse



The Viewer 3D can be opened on a step if the underlying model manages individual based spatialized trees. It can be configured with 

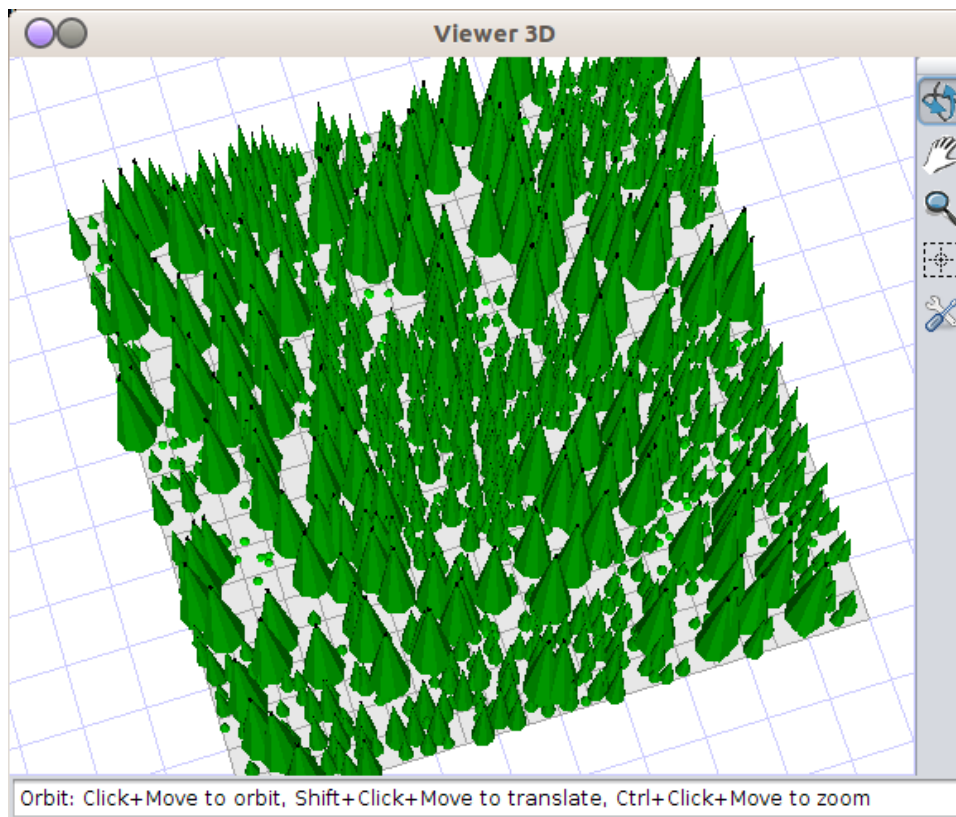
Make a scenario

To run an evolution, right click on a step > Evolution. To perform a thinning, right click on a step > Intervention > choose the intervention method.



During each evolution in Mountain, the progress bar slows down when the radiative balance happens.

- 0 > Evolution till 15
- 15 > N V Thinning > 40 trees / 25 m3
- *15 > Evolution till 40
- 40 > N V Thinning > 50 trees / 30 m3
- *40 > Evolution till 55
- 55 > Complex Thinning > N Biggest > 30
- *55 > Evolution till 75



The forest at year 75.

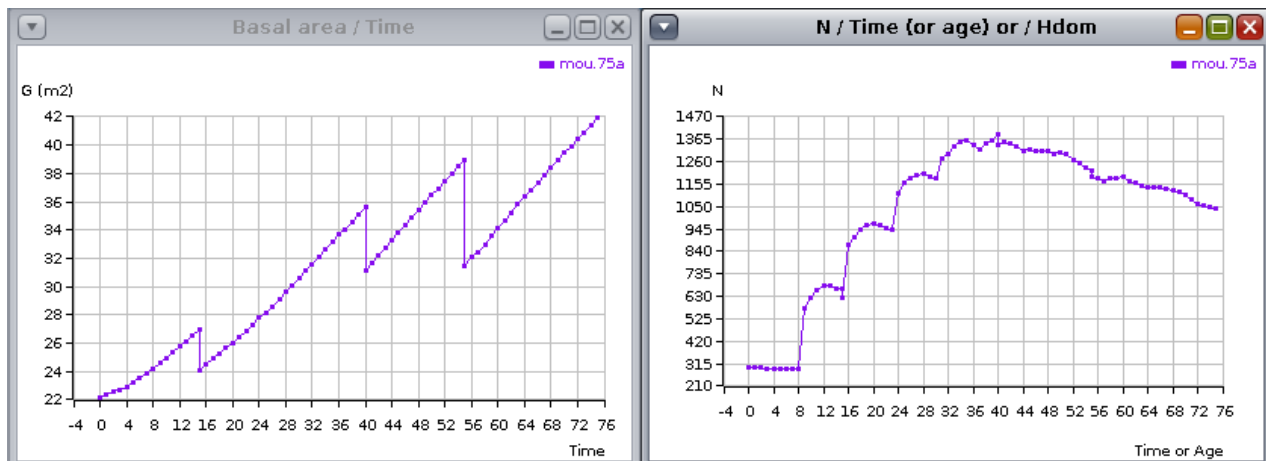
Check the simulation

Click on step 75 in the Project manager (now current step)

Lateral bar (Charts)

Double click on Basal area / Time

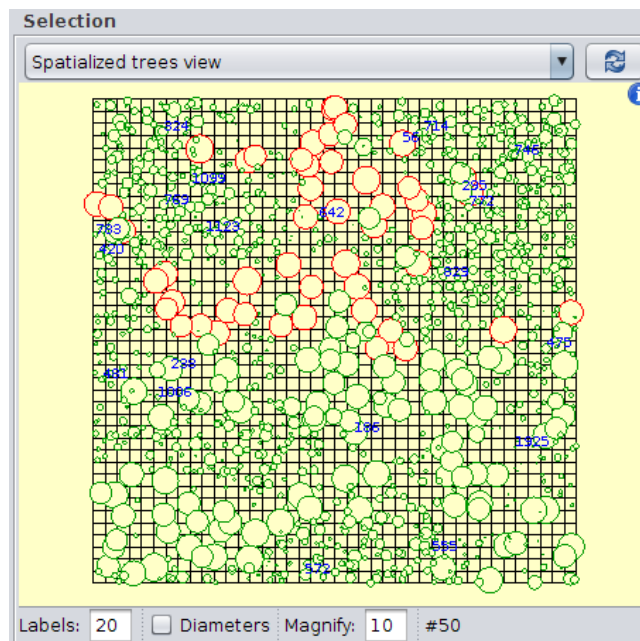
Double click on N / Time...



Evolution of Basal area and tree number over time, from the beginning of the scenario to the current step.

Try other intervention methods

- Make different alternative interventions on Step 75 (a)
- (b) Step 75 > Intervention > SardinUnevenThinner
Keep the default values
 - (c) Step 75 > Intervention > Diameter Height Age
Cut trees with diameter lower than 20 cm
 - (d) Step 75 > Intervention > Thinning diagram
Class width > 10 cm
Use the sliders to remove all trees between 30 and 50 cm
 - (e) Step 75 > Intervention > Complex thinning
Graphic selection
Select / deselect the trees to be cut:
 - by double clicking their trunk
 - by drawing a right click selection rectangleCheck the result by refreshing the Selection preview
Inspector view
Spatialized tree view
Validate
 - (f) Step 75 > Intervention > Complex thinning
Trees in Cells
Select half the plot with a right click selection rectangle
Refine selection
N biggest > 50

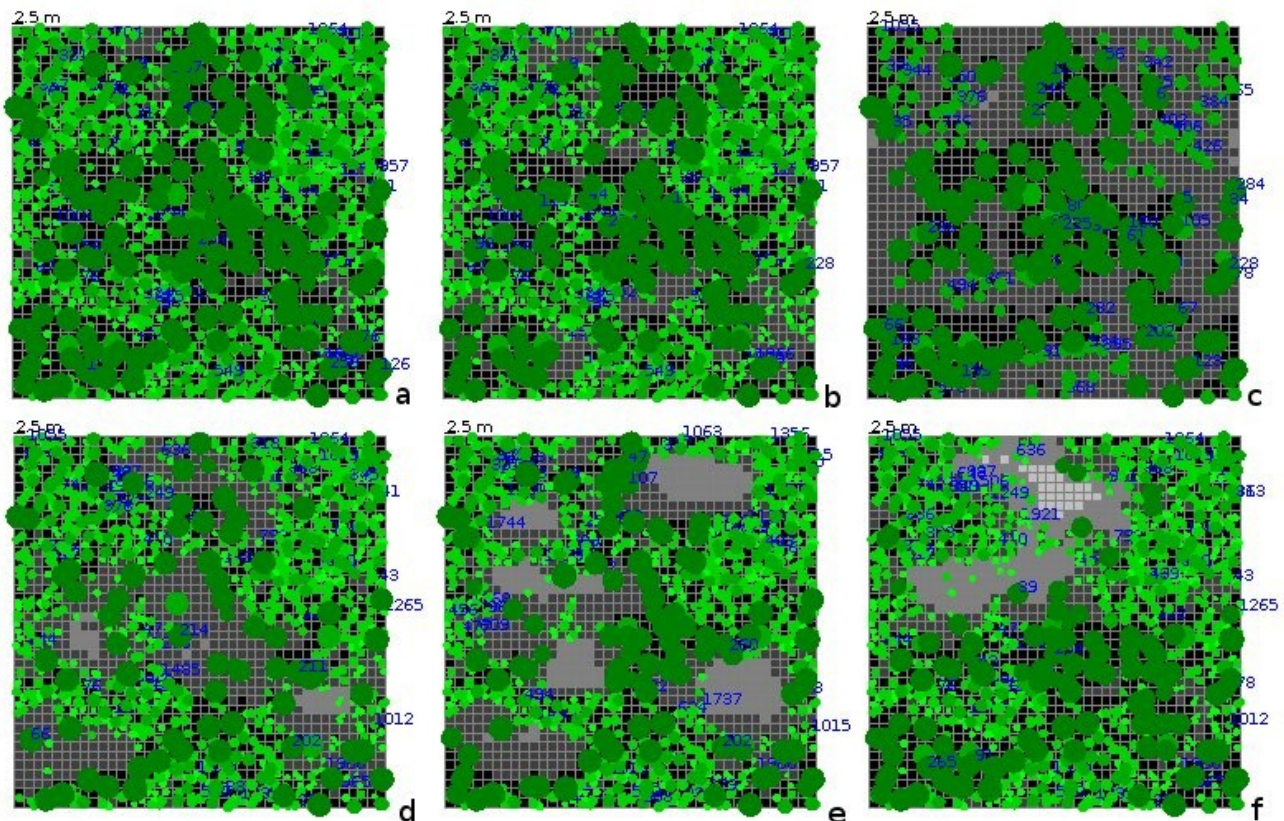


The second filter (N Biggest) refines the selection of the first one (Trees in Cells). The result can be checked in the Spatialized trees preview. Here, we remove the 50 biggest trees in the upper part of the plot.

Compare the interventions

In the Mountain viewer

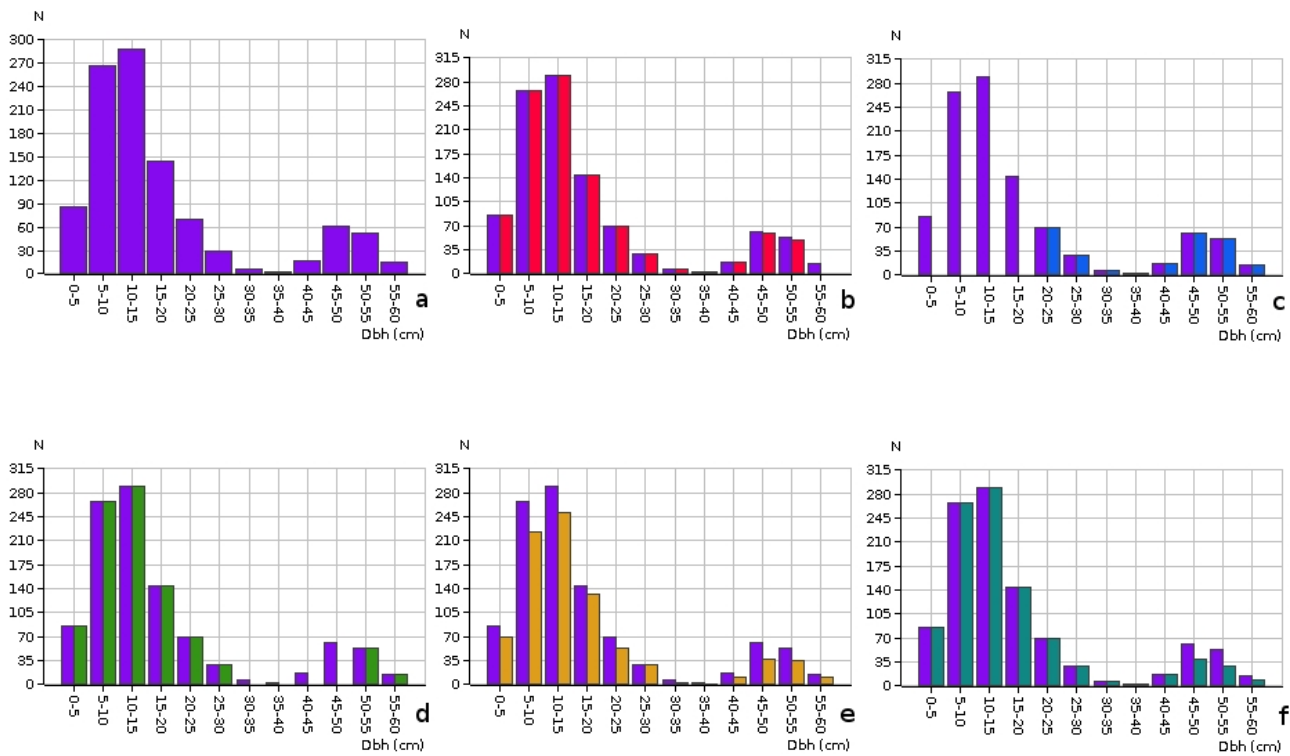
To open a Mountain viewer on a step: click on the step in the Project manager, then double click on Mountain viewer in the lateral bar.



Open a Mountain viewer on Step 75 (a) and on the 5 steps resulting of the interventions (b to f).

In the N / Diameter classes chart

To open a N / Diameter classes chart on a step: click on the step in the Project manager, then double click on N / Diameter classes in the lateral bar. To add a step in an opened chart, right click on the chart and choose "Add (step name)".



Open a chart N / Diameter classes on Step 75 (a) and on the 5 steps resulting of the interventions (b to f). Check in which classes the trees were cut .

* How to launch Capsis

If you have no shortcut on your desktop, launch it from a Terminal:

Under Windows

- Open a terminal
- Programs > Accessories > MS DOS Prompt
- Go to the Capsis install directory
- `cd capsis\install\directory\`
- Run Capsis in english
- `capsis -l en`

Under Linux (e.g. Ubuntu)

- Open a Terminal
- Dash (lateral bar, top icon) > Terminal
- Go to the Capsis install directory
- `cd capsis/install/directory/`
- Run Capsis in english
- `sh capsis.sh -l en`