



# 8th Capsis Annual Meeting

## Montpellier - 28.6.2006

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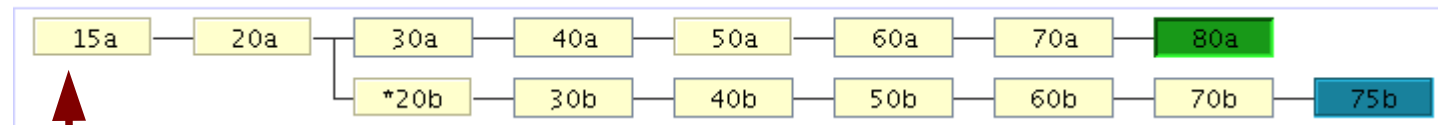
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# The Capsis project

**Objectives:** Build a **software platform** to **integrate** many forest growth, yield and dynamics models **for** forestry modellers, forestry managers and education

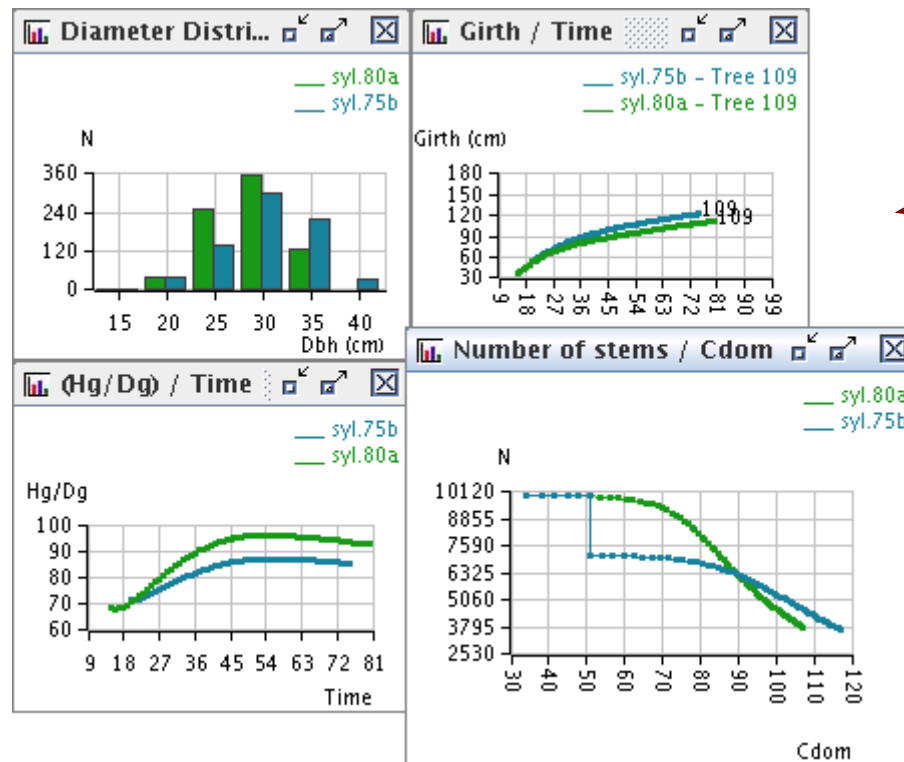
Name : syl - Model : Pin laricio - 5 ha - All in memory - virtual stand



Initial situation

Intervention

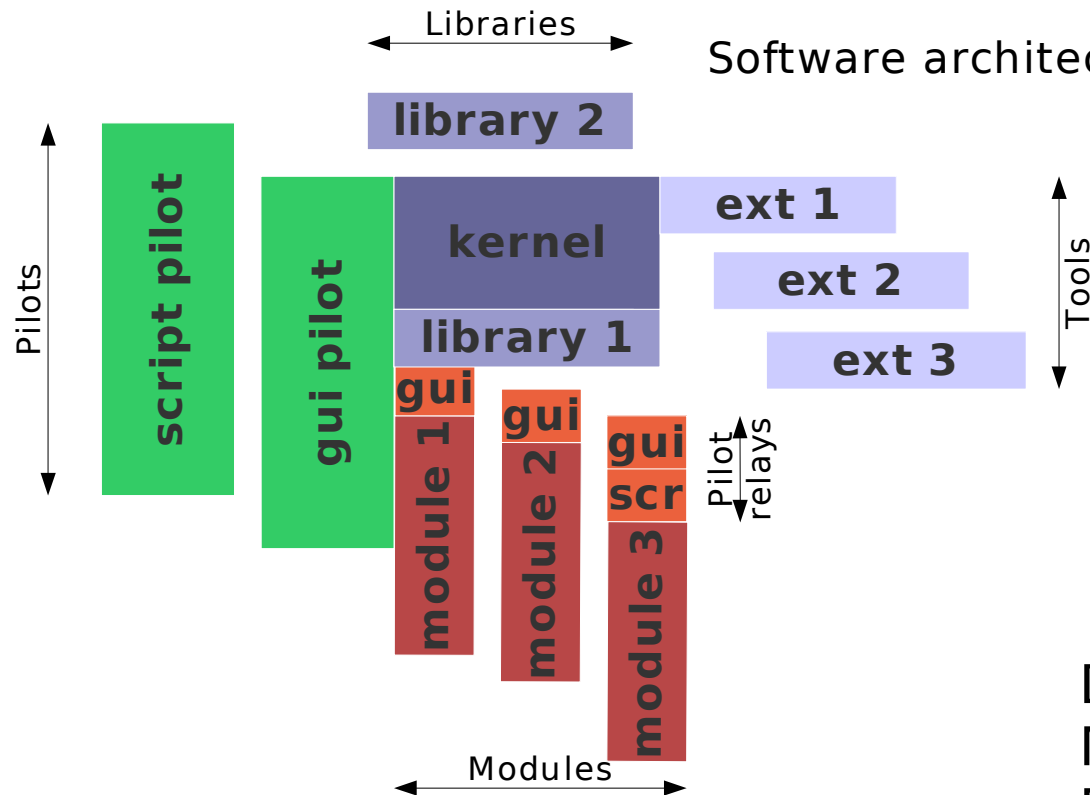
Scenarios



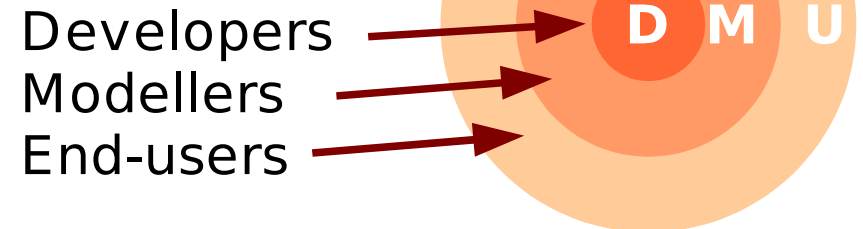
Integrated outputs

Export

# The Capsis project organisation



Actors roles



Clear participation rules

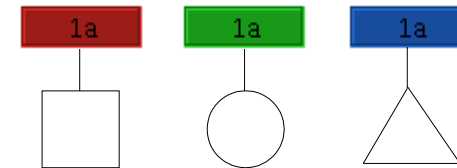
- **Common part is free (LGPL)**
- **Rules in the Capsis charter**

Modellers develop their modules,  
Modules belong to their authors,  
Sources codes are shared...

The Capsis community :  
Developpers + Modellers are co-  
developping together

# Capsis specificities

The **data structure can be different** for different models



-> several thematics are possible

At present time: (1) **forestry** and (2) **fish dynamics**

**Stability**: the kernel not often changes

**Evolutions**: extensions everywhere

- Interactive / script modes
- French / English user interface  
(english only in the code)
- Possible connections with other simulators
- Grouping system with filter extensions

Capsis kernel	Extension manager (390)	Data extractor (182)
		Data Renderer (6)
		Economic function (7)
		Filter (12)
		Generic tool (6)
		Grouper display (3)
		Intervener (26)
		loformat (71)
		Lollypop (1)
		Memorizer (4)
		Model tool (18)
		Object viewer (24)
		Stand viewer (30)

# Training session in february 2006

Generally one major training session every year

## **24-26 feb 2006**

11 trainees: INRA (6), Cemagref (4), Cirad (1)

3 days

day 1: The Java language

day 2: Capsis kernel and modules

day 3: Capsis extensions

Final evaluation by the trainees to do better

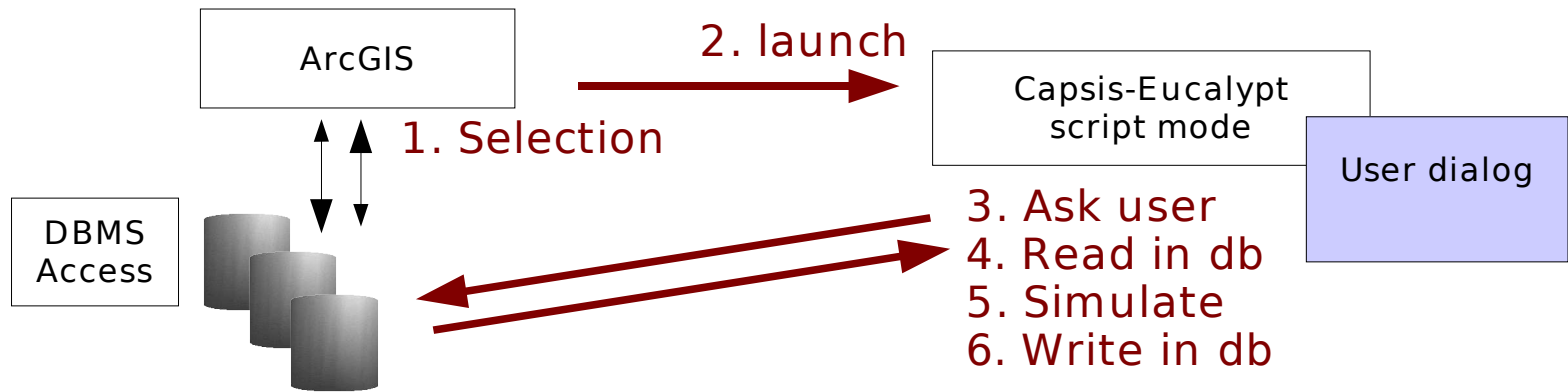
## **Other training sessions in 2006:**

IFN - 14-16 march 2006 (including starting phase)

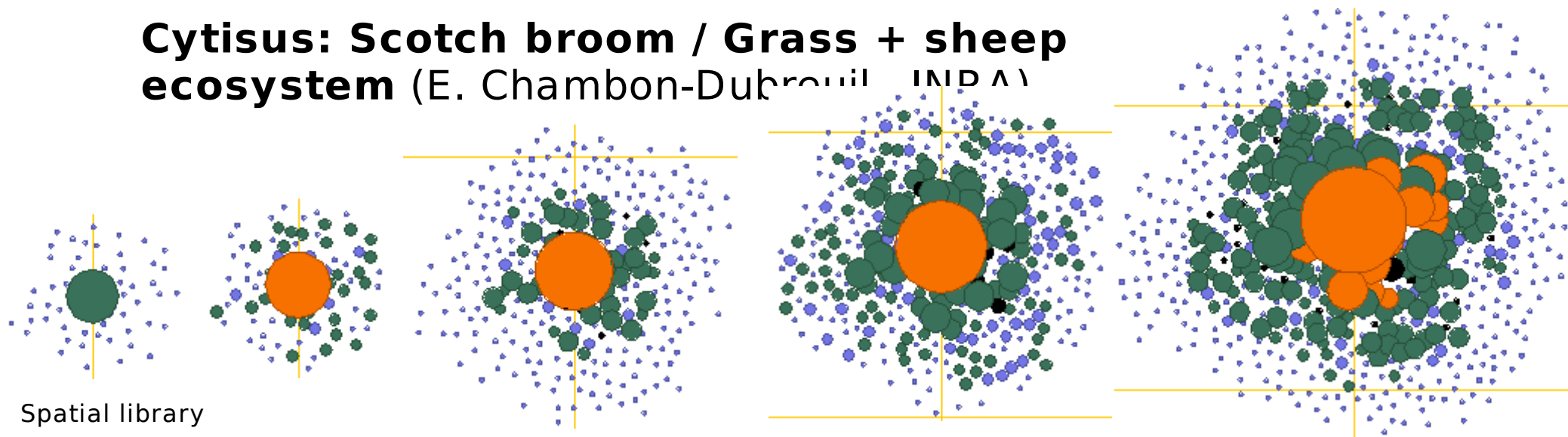
CAF - 5-16 june 2006 (including complete model  
co-development)

# Active projects

## GIS-Capsis Eucalypt connexion (V. Cucchi, L. Saint-André - Cirad)

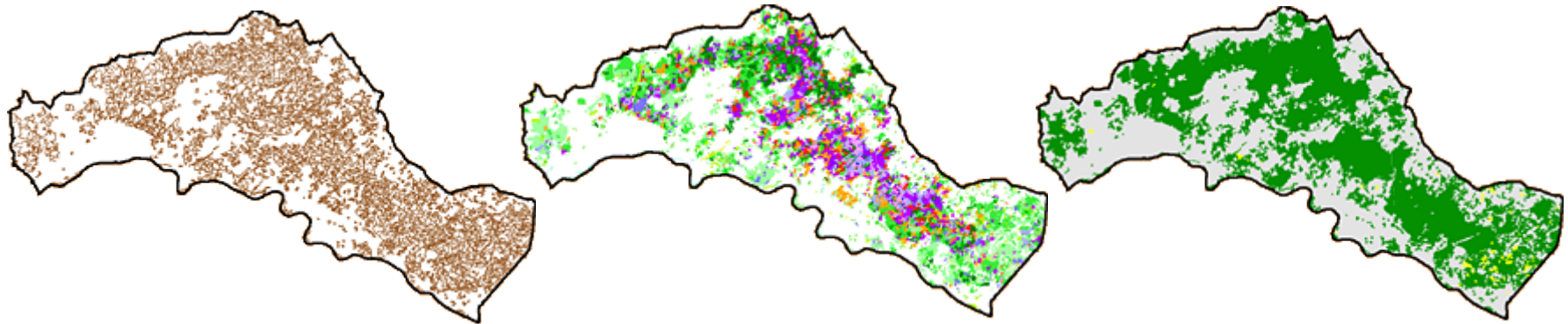


## Cytisus: Scotch broom / Grass + sheep ecosystem (E. Chambon-Dubreuil)



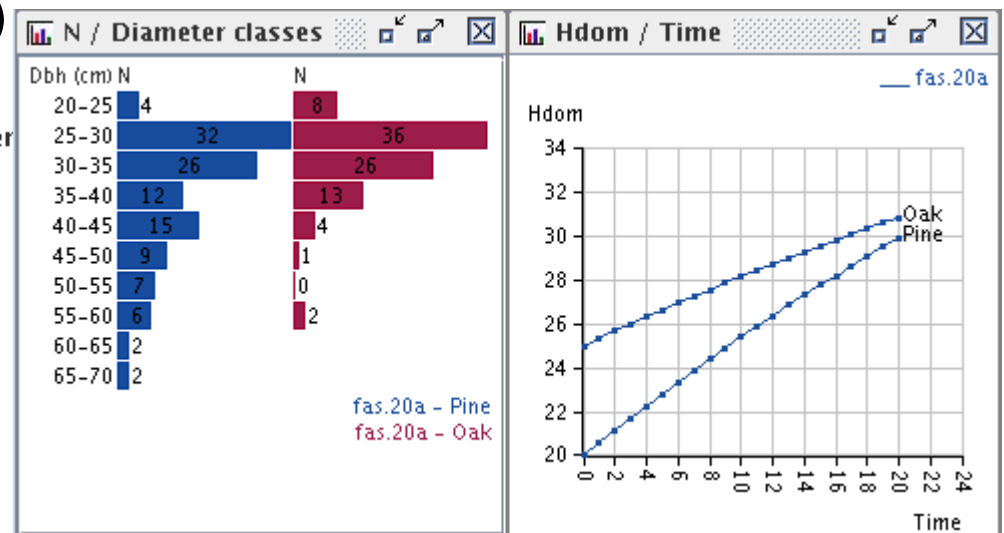
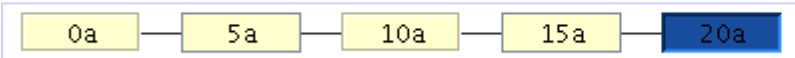
# Active projects (2)

**IFN - French National Inventory** (A. Colin, J.-L. Cousin, M.-D. Van Damme)



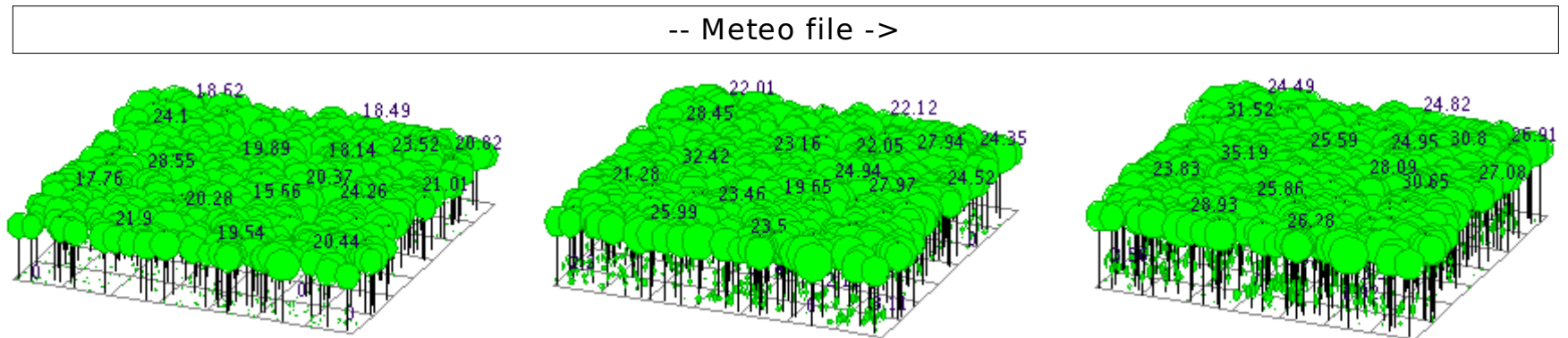
**Mixing Fagacees and Sylvestris models for Pine + Oak** (G. Decélie - Cemagref)

Name : fas - Model : Fagacees-Sylvestris - 5 000 m2 - All in mer

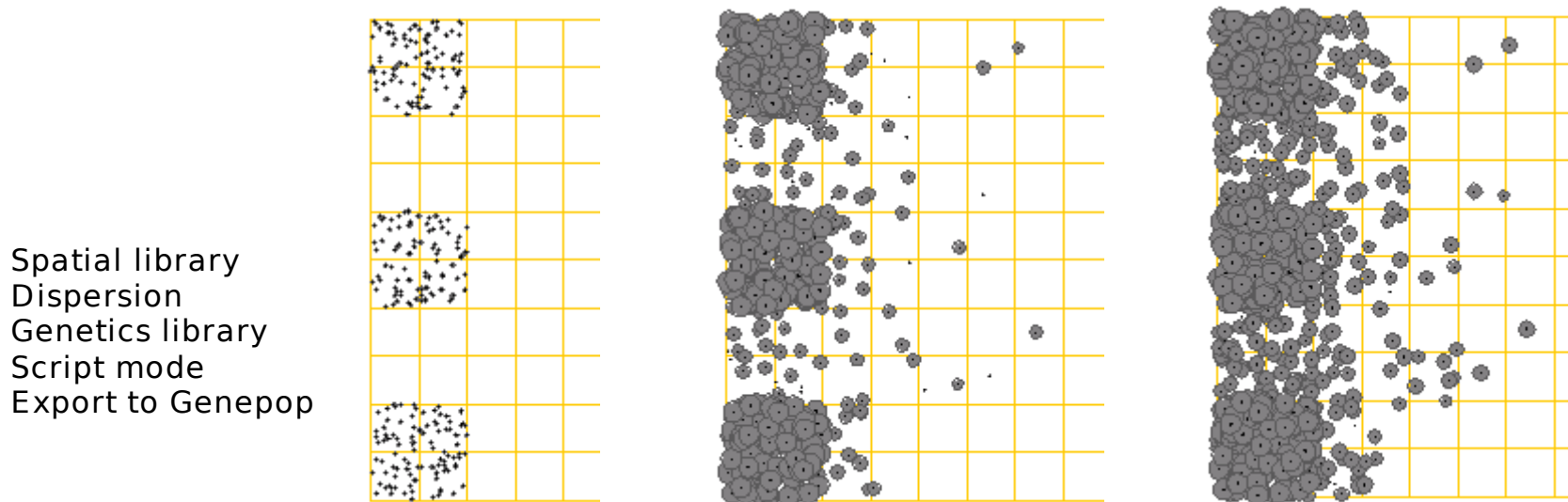


# Active projects (3)

## Dynaclim: mixing ecophysiology and dendrometry level models, based on Ventoux (H. Davy - INRA)



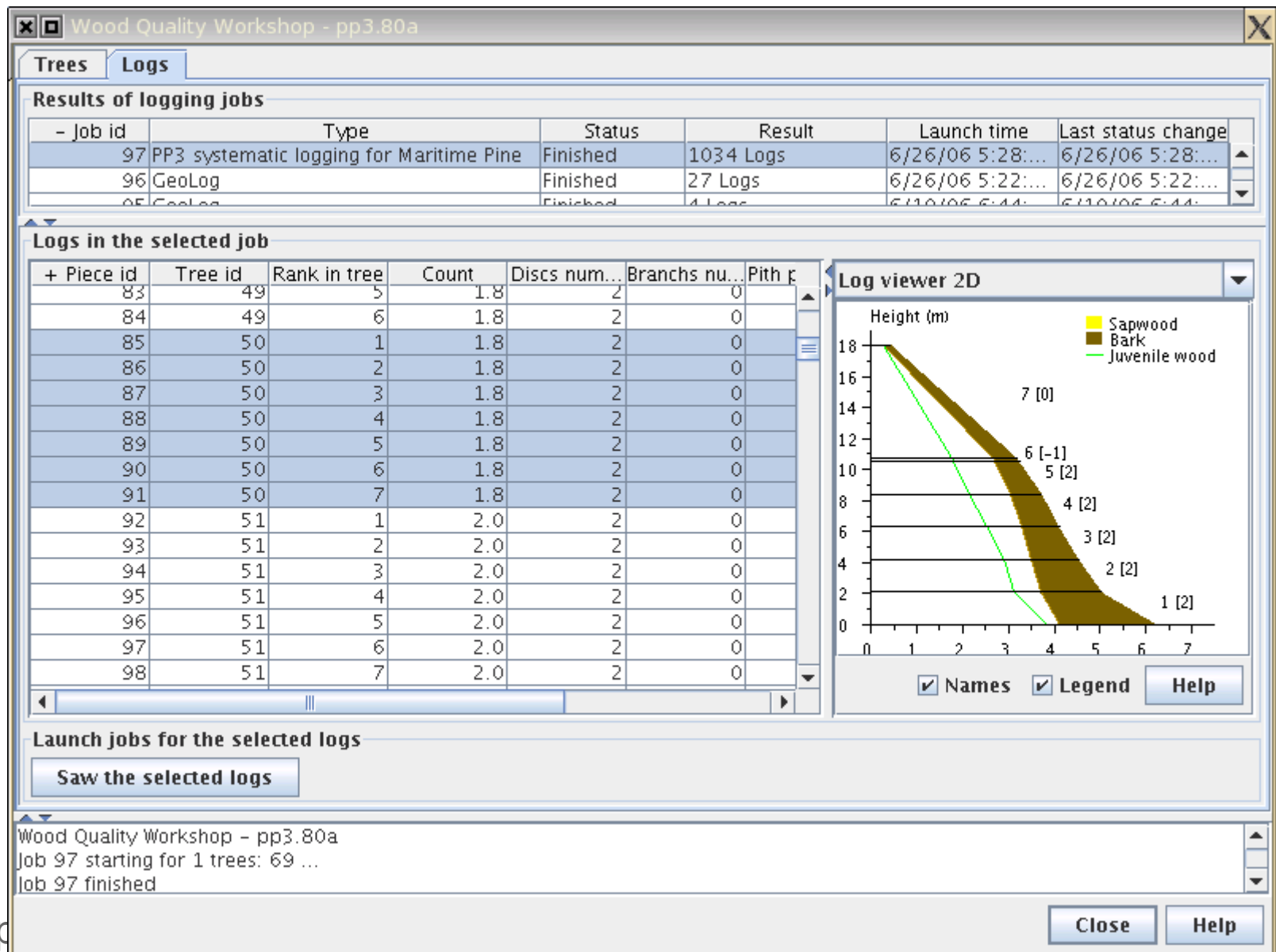
## TranspopRege: transitionnal populations study over one generation (S. Oddou - INRA)





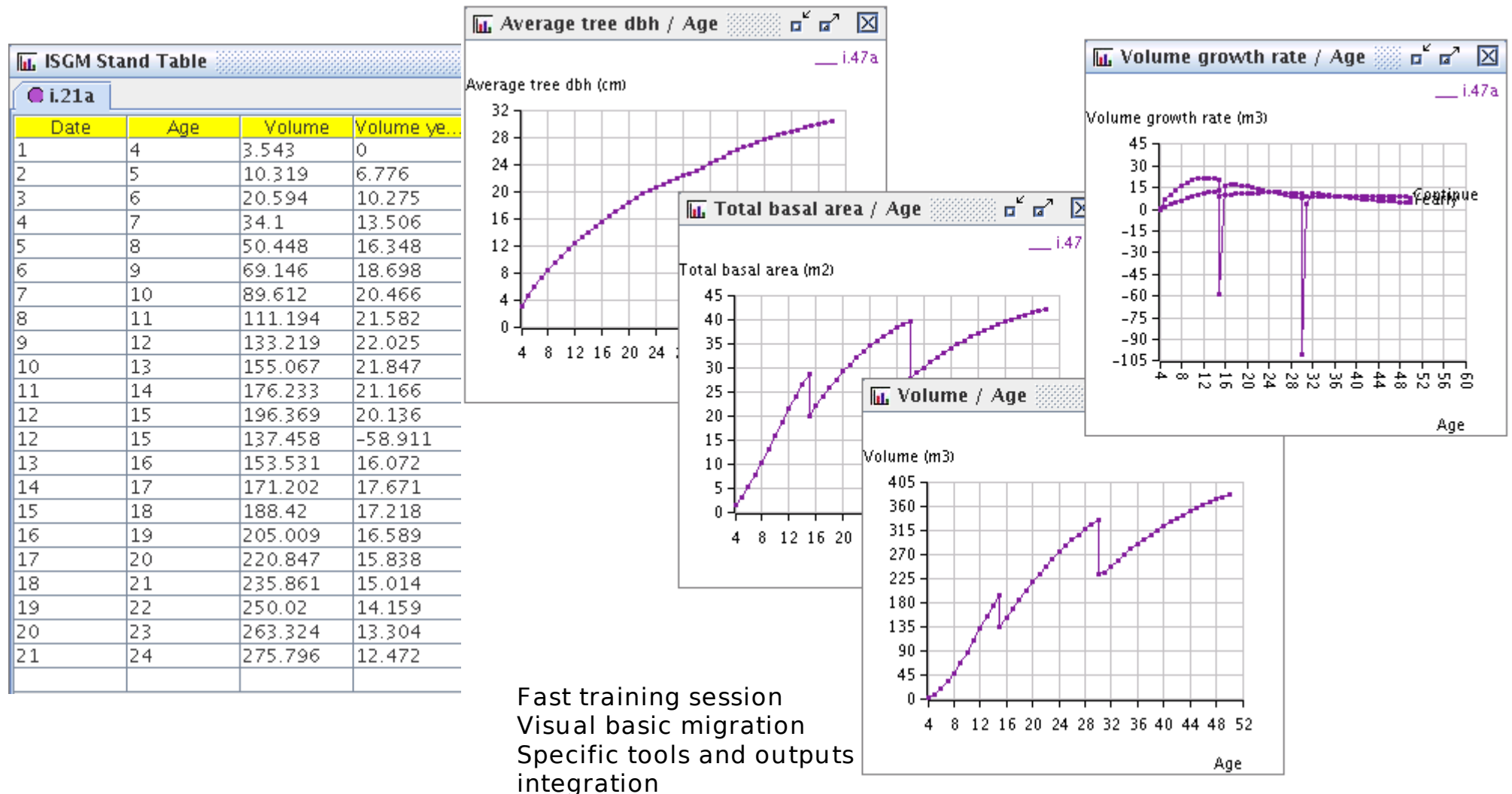
# Active projects (4)

**Capsis Wood Quality Workshop** (D. Pont - ENSIS, F. Mothe, P. Vallet, C. Meredieu, T. Labbé - INRA)



# Active projects (5)

## Integrated Stand Growth Model (Tang ShouZheng, Hong LingXia - Chinese Academy of Forestry)



# Communications - Networks

- China, june 2005 - Information Science for Agriculture and Environment (ISAE) - GuiZhou Normal University, GuiYang  
+ *Chinese Academy of Forestry for preliminary contacts (Hong LingXia)*
- New Zealand, nov 2005 - 5th Workshop "Connection between Forest Resources and Wood Quality : Modelling Approaches and Simulation Software"  
+ *ENSIS for 10 days of work: NZ1 model (Andrew Gordon) + WQW toolbox basics (Dave Pont)*
- Saint Pée sur Nivelle, feb 2006 - Dynamics of populations and managed stands (INRA network)
- Paris, march 2006 - CAQ 9 "Croissance Amélioration Qualité" (INRA network)
- Paris, march 2006 - INRA, DS ECONAT (by J.-F. Dhôte)
- Submitted : PMA06 in Beijing, nov 2006  
*(scheduled work with Dave Pont and Hong LingXia)*

# Recent publications

Goreaud F., de Coligny F., Courbaud B., Dhôte J.-F., Dreyfus P., Pérot T., **2005**. [La modélisation : un outil pour la gestion et l'aménagement en forêt](#). Vertigo 6 (2).

de Coligny F., Meredieu C., Labbé T., Vallet P., Dreyfus P., **2005**. [Using Capsis for connection with wood quality](#). In Proceedings of the fifth Workshop "Connection between Forest Resources and Wood Quality : Modelling Approaches and Simulation Software", Waiheke Island, New Zealand, 20-27 November 2005. In press.

Goreaud F., Courbaud B., de Coligny F., **2005**. [How long does the spatial structure of an initial state influence the dynamics of a forest growth model ? A simulation study using the Capsis platform](#). In Proceedings of the Open International Conference on Modeling and Simulation - OICMS 2005, 13-15 June 2005, Clermont Ferrand (France), pp 217-230.

de Coligny F., **2005**. [Capsis: Computer-Aided Projection for Strategies In Silviculture, a software platform for forestry modellers](#). Workshop on Information Science for Agriculture and Environment (ISAE). 3-4 June 2005, GuiZhou Normal University, GuiYang, P.R. China.

Cucchi V., Meredieu C., Stokes A., de Coligny F., Suarez J., Gardiner B.A., **2005**. [Modelling the windthrow risk for simulated forest stands of Maritime pine \(Pinus pinaster Ait.\)](#). Forest Ecology and Management, 213(1-3): 184-196.

# Integrated modules: various types

## IBM

Fagacées  
Fasy

## IBM + Spatialized

Cytisus  
Fiesta / NRG  
Mountain  
Paletuviers  
Presage  
Quercus  
Regelight  
Samsara  
Selva  
Sexi  
Simsys  
TranspopRege

## Diameter class

CA1, Luberon  
Eucalypt  
IfnCa  
Laricio  
NZ1  
PNN  
PP3  
QS1  
Sylvestris  
Transpop

## Diameter class + Spatialized

Alisier  
Dynaclim  
Ventoux, Ventoug

## Fish

Bidasoa  
Dynet  
Guppy

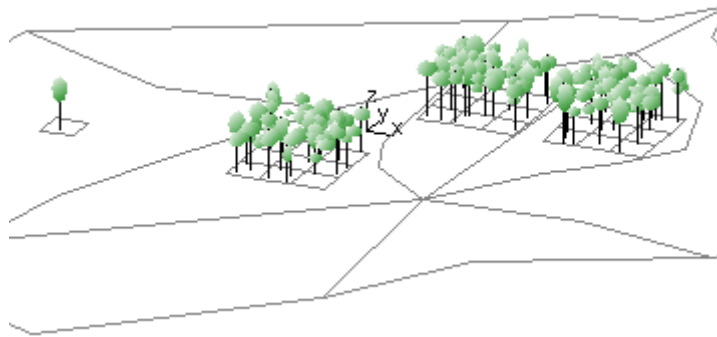
## Stand level

ISGM  
**AgroForestry**  
HiSafe

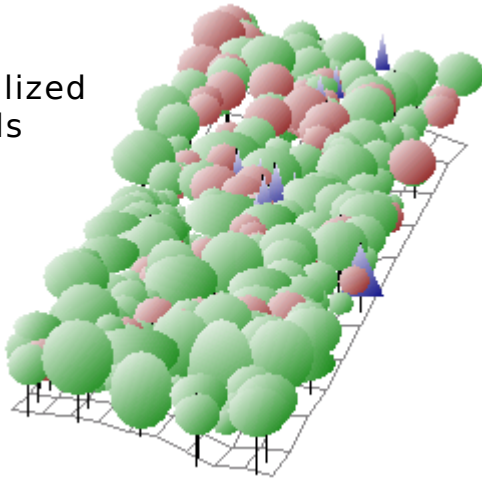
# Perspectives

## **Lollypops** everywhere: a common visualization under Capsis

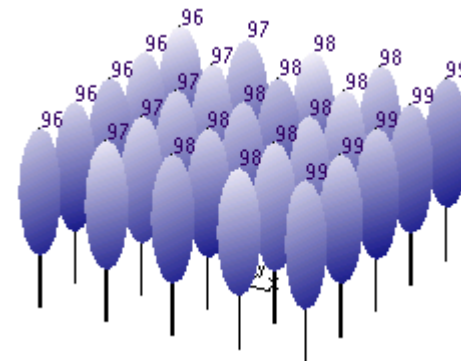
semi  
spatialized  
models



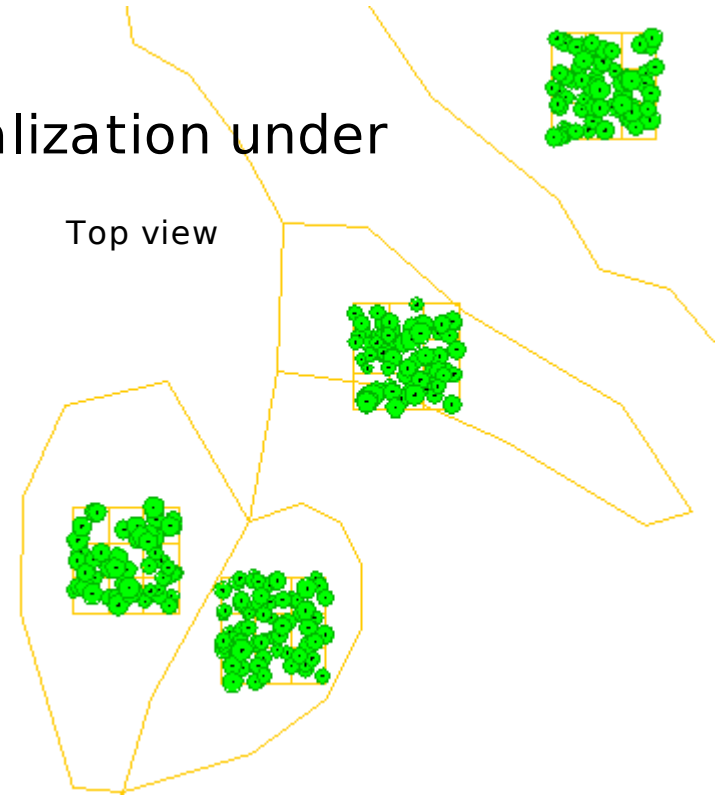
spatialized  
models



not spatialized  
models  
->  
use a  
Spatializer  
(under  
development)

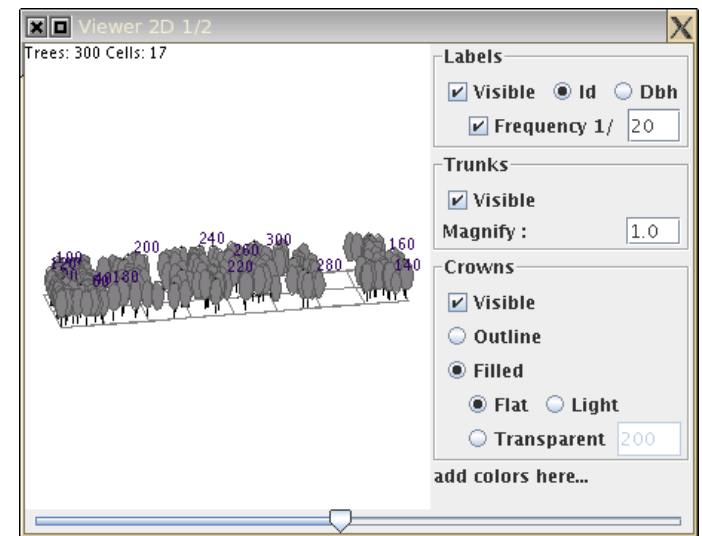


Top view



# Future

- New integration projects
- Progress on the common parts
- Better documentation -> self-training
- Support for other european projects
- Other partnerships with european / foreign countries...



Project number increases: ask for a permanent position for a **second Capsis developer** (computer developer) :

- Better support for more projects
- Generalize interruptible threads in gui pilot
- Enhance scenario manager and other key components
- Better configuration for data extractors
- Better finishing of the modules (doc...)
- Web site completely in english
- Build new extensions for production purpose
- Modernize the kernel
- Connections with AMAP software...