



COST ACTION FP 0703

**Echoes: Expected Climate cHange
and Options for European Silviculture**

Country Report: Major points

BELGIUM

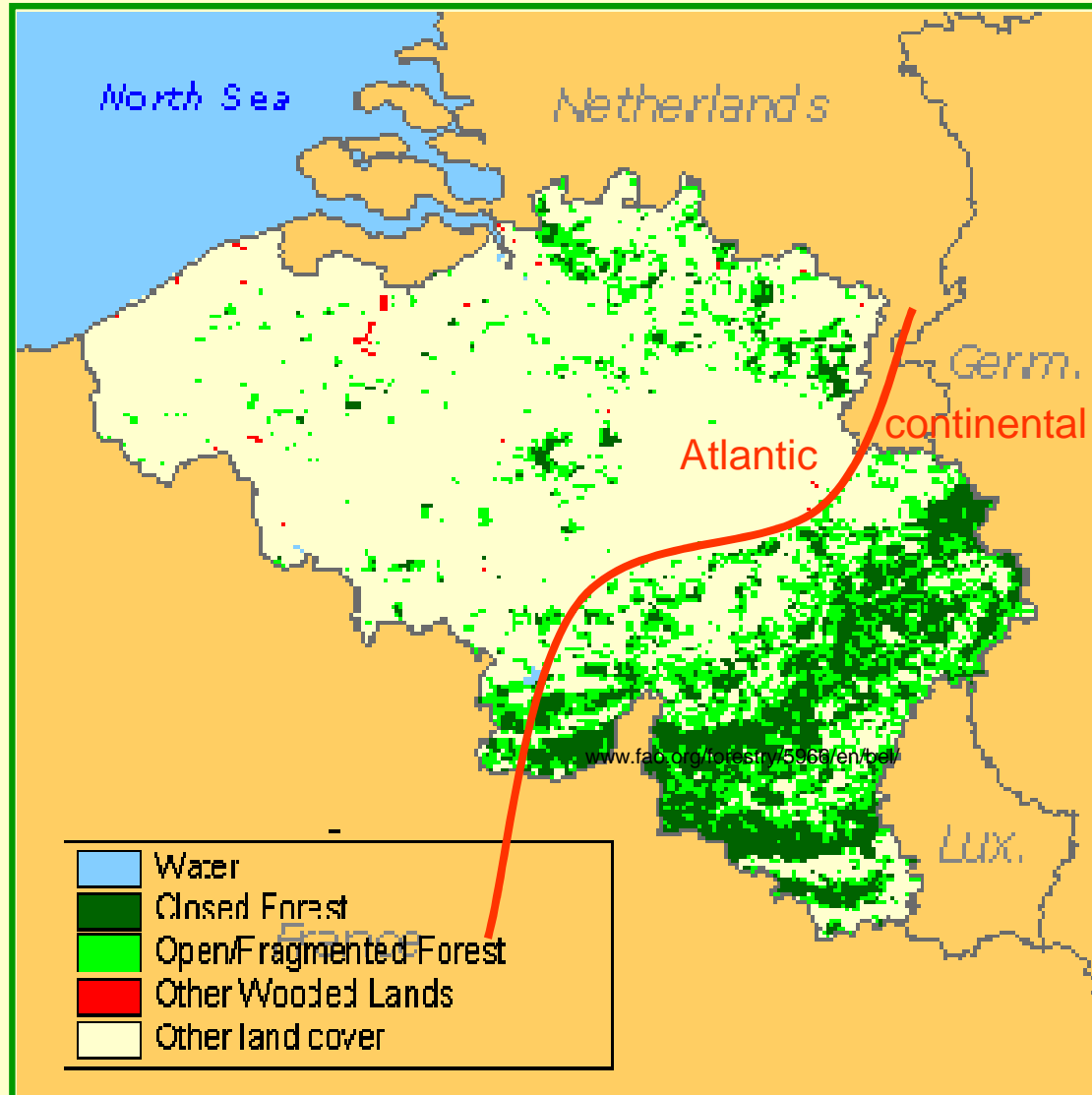
22-24 January 2009, Florence - Italy

Matteo Campioli (University of Antwerpen)

Hugues Claessens (Gembloux Agricultural University)

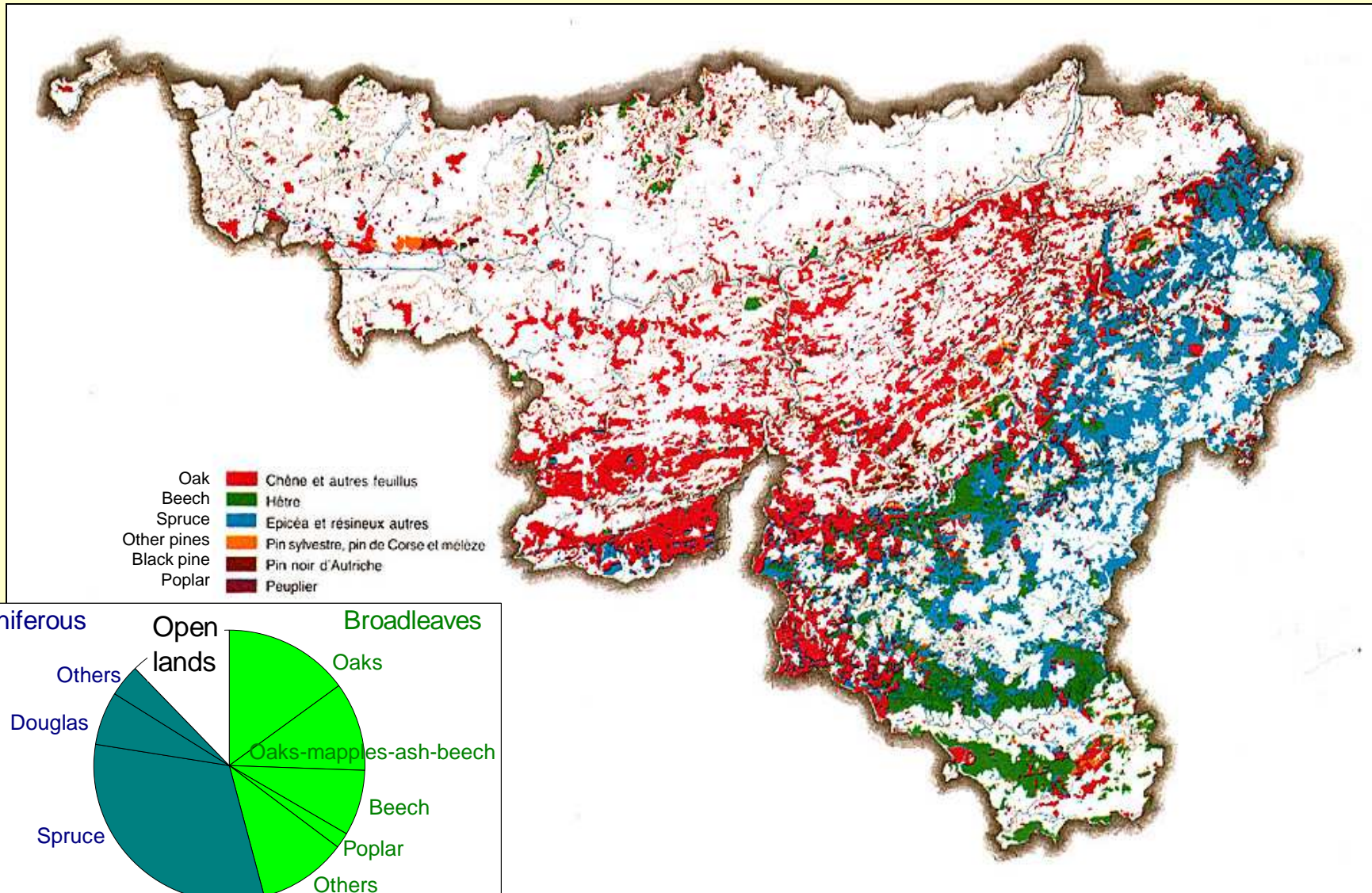
Christine Farcy (catholic University of Louvain)

Belgian Forest

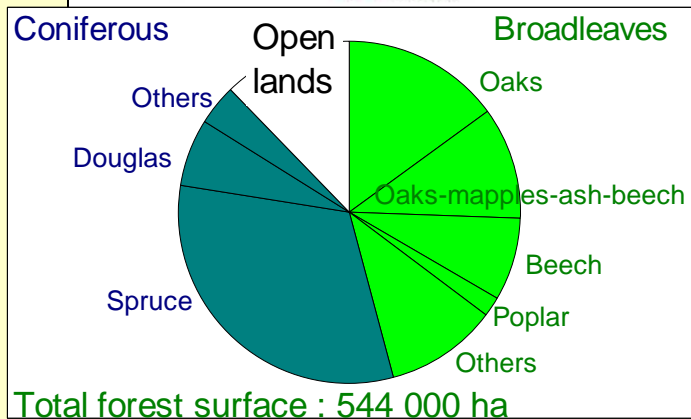


- Forest cover 23% (690000 ha)
 - Wallonia (S Belgium): 544000 ha – 32%
 - Flanders (N Belgium): 146000 ha - 11%
- Semi-natural forests + plantations
 - oak, beech
 - Spruce (continental), pine
 - poplar (especially atlantic)
- High productive forests
 - Standing stock : 61 Mt C (2000)
 - sink 120 gC m⁻² / year

Forest in Walloon Region



- Oak ■ Chêne et autres feuillus
- Beech ■ Hêtre
- Spruce ■ Epicéa et résineux autres
- Other pines ■ Pin sylvestre, pin de Corse et mélèze
- Black pine ■ Pin noir d'Aulriche
- Poplar ■ Peuplier



Impact climate

- Observed impact :

since 1833, the average temperature in Brussels increased by 1,5-2°C (Royal Meteorological Institute, RMI)

- Expected impact : for year 2080

	Summer	Winter
Temperature	+ 2.4 / 6.6 %	+ 1.7 / 4.9 %
Precipitation	- 0 / -50 %	+ 6 / 23 %

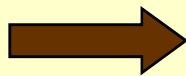
Van Yperzele and Marbaix, 2004

Impacts

- **Observed impacts**
 - Some declines that put in evidence plantations on inadequate sites
- **Expected impacts**
 - Decrease of beech forest surfaces in atlantic region
 - General diseases on spruce, except in the Ardennes
- **Impact monitoring**
 - Intensive Monitoring program of forest ecosystems (level II plots, ICP Forests, NFI, CarboEurope).
In project: Forest Health Monitoring
- **Impact management**
 - Disturbance on management plans (ex: spruce forest on dry soils)

Adaptation

- **Vulnerability of forests and forestry**
 - Strict adequation site vs species in plantations
 - Promote diversity (at its different scales)
- **General adaptation strategy or policy**
 - Forest code update (15/07/08) with special focus on multifunctionality and sustainability including climate change (Wallonia)
 - Priority of the forest service on forest planning - public forest (Wallonia)
 - Priority on native deciduous species (Flanders)
- **Forest adaptation measures**



Working group aiming to synthesising adaptation recommendations (for foresters, scientists and policy) initiated by decision-makers (Wallonia)

Adaptation

- **Research studies of forest adaptation**
 - A decision support tool for sustainable forest management based on ecophysiological analysis and simulation of the variability in tree development (www.SimForTree.be)
 - Drought constraint (artificially induced) and beech
 - Effects on nutrient resources on tree response to water stress
 - Studies on water use efficiency, carbon, water and nutrient fluxes
 - Autecology of forest species with reference to water supply changes in forest sites (modelling at the site scale - 1/20000)
 - Water availability modelling in forest stands (SWAT-1/20000)
 - Others...

Mitigation

- Afforestation
 - Multi-functional forest vs bioenergy plantation
 - Promotion of wood as a material (storage, substitution)
- Bioenergy plantation – short rotation coppice
 - LOW : C emission, environmental impact, land occupation
 - HIGH : Biofuel related costs
 - experimental/pilot phase - possible 10000 ha Flanders
 - Flemish expertise-centrum bioenergy (www.inbo.be)
- Kyoto (7.5%):
 - 5% GHG reduction (1990-2006)
 - LULUCF 0.7% GHG reduction (2006)
 - 50 million € C credits JI/CDM (2012)