

Site description (S.Rambal)

The study site is located on a flat area 35 km NW of Montpellier (southern France) in the Puéchabon State Forest (3°35'40"E, 43°44'30"N, elevation 270 m). It is surrounded by the large area (673 km²) of the Melody (Mediterranean Landscapes in a Changing World: Coupling Dynamic and functional analysis) IGBP/GCTE core research project with 47% of dense forests and 42% of open forests and shrublands (<http://melody.cefe.cnrs-mop.fr>). This site is part of the Carboeuroflux network a component of Fluxnet.

This forest has been managed as a coppice for centuries and the last clear cut was performed in 1942. Vegetation is largely dominated by the overstorey tree *Quercus ilex* whose percent cover is greater than .80 and the leaf area index of ca. 2.9. Mean tree height was about 5.5 m. In 1999, density of resprouted stem was 8500 ± 600 stems per ha. The percentage of stem with DBH < 4 cm is 11% and 46% for DBH>7 cm. The above-ground biomass is about 7000 ± 920 g dry matter (DM) m⁻². Understorey species compose a sparse (percent cover lower than 25) shrubby < 2m layer with *Buxus sempervirens*, *Phyllirea latifolia*, *Pistacia terebinthus* and *Juniperus oxycedrus* and likely have a small contribution to the whole ecosystem function.

The area has a Mediterranean-type climate. Rainfall occurs during autumn and winter with about 75% between September and April. Mean annual precipitation is 883 mm with a range 550-1549 mm recorded over the previous 16 years. Mean annual temperature over the same period were 13.5°C respectively. This forest grows on hard Jurassic limestone filled with clay soil. Because of the large fraction of rocks and stones in the soil profile available water cumulated over 4.5m depth averages only 150mm. Because of this low availability, vegetation undergoes very frequent drought summer stress.

Parameter	Value	Remark
Stem density	8510 stem ha ⁻¹	1999 inventory
Canopy mean height	5.5 m	
Leaf area index (single side)	2.9 m ² m ⁻²	Plant canopy analyzer
Sun leaf area	4.3 cm ²	Early fall estimate
Shade leaf area	7.6 cm ²	Early fall estimate
Leaf lifespan	2 years	
Current year leaves	52% of the whole canopy mass	Late June estimate
One-year leaves	48%	Late June estimate
Leaf area/ stem area:	.85±0.05	
Basal area	27.8 m ² ha ⁻¹	1999 inventory