

CROATIA

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- Total area of national forest land: 2,688,687 ha
- Total area of coppice forests: **533,828 ha (20 %)**; 48 % managed by the state, 52% privately-owned
- Total growing stock of coppice forests: 49.5 million cu.m (91 cu.m/ha)
- Annual volume increment of coppice forests: 1.39 million cu.m (2.6 cu.m/ha/yr)

Types of (low) coppice forests

1. *Anthropogenous coppice forests*: originate as a result of human managerial interventions.
2. *Zoogenous coppice forests*: formed in areas under long-lasting constant pressure of intensive cattle grazing, and plants acquire bush-like form which they maintain throughout their life-time.
3. *Climatogenous coppices*: formed under severe climatic conditions, just under timber-line on mountains, or in areas with strong winds.
4. *Hydrogenous coppices*: formed on terrains with constant flooding where damages from ice and oxygen depravation turn potential trees into bush-like coppices. *Alnus* sp., *Fraxinus* sp. and *Salix* sp. are the most common species in these forests.
5. *Pyrogenous coppices*: are a result of vegetative regeneration of burned areas.



Low coppices (holm oak) (Photos T. Dubravac)

High coppice (pollarding)

- In the northern part of the Croatia (Istria), especially in the northern part of the Island of Cres.
- Used in the private (peasant) forests: cut oak and sweet chestnut at a height of about 2-3 m above the ground with a view to obtain firewood, stakes, small holdings, as well as food for cattle, depending on the shift cuts. In these woods grazing is permanently allowed as cattle can not reach the new shoots formed at 2-3 m height above the ground.
- Pollarding is suitable for: holm oak, sweet chestnut, mulberry, hazelnut, willow.



Pollards of pubescent oak (right) (Photo T. Dubravac)

Coppice with standards (CWS)

- CWS is the most convenient form of management for small broadleaved forests, as it allows for the production of firewood, poles, small roundwood, and litter.
- It is also possible to organize grazing in the CWS.

Tree species used in coppices

a. *State-owned coppices, production (economic) functions*

- 35.8 % European beech 26.0 % pubescent oak 9.4 % sessile oak 5.5 % hornbeam 4.3 % holm oak 19.0 % other broadleaved tree species

b. *Privately-owned coppices, production (economic) functions*

- 23.9 % holm oak 22.0 % pubescent oak 17.1 % hornbeam 9,6 % European beech 5.6 % sessile oak 21.8 % other broadleaved tree species



Holm oak (*Quercus ilex*) coppice (Photo T. Dubravac)



Pubescent oak (*Quercus pubescens*) coppice (Photo T. Dubravac)

Rotation of coppice forests

- Oaks (*Quercus pubescens*, *Quercus ilex*, *Quercus petraea*): 80 years
- European beech (*Fagus sylvatica*): 80 years
- Hornbeam (*Carpinus betulus*): 40 years
- Black locust (*Robinia pseudacacia*): 30 years
- Soft broadleaves (*Populus* sp., *Salix* sp., *Alnus* sp.): 30 years