

## COST Action FP1301 EuroCoppice

Innovative management and multifunctional utilisation of traditional coppice forests –  
an answer to future ecological, economic and social challenges in the European forestry sector

# The EuroCoppice Glossary: Terms & Definitions related to Coppice

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# TERMS AND DEFINITIONS RELATED TO COPPICE

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Term	Synonyms	Definition	Reference
<b>adventitious</b>	adventitious root; adventitious bud; adventitious shoot	1. (of buds) those produced elsewhere than normal (such as leaf axils, shoot apices (e.g. those appearing with wounds). 2. (of roots) lateral roots coming from organs other than main root system, such as the stem.	Beentje & Williamson (2016)
<b>afforestation</b>		Establishment of a forest or stand in an area where the preceding vegetation or land use was not forest.	Ford-Robertson (1971)
<b>bioenergy</b>		Energy derived from biomass.	ISO EN 16559
<b>biological diversity</b>	biodiversity	The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.	UNEP (1992) via SilvaVoc
<b>browsing</b>		Feeding on the buds, shoots and leaves of shrubs and trees by livestock or wild animals.	Kaennel & Schweingruber (1995)
<b>bud</b>		A meristem (either apical or lateral) in early development or resting stages, with its protective coverings; immature shoot, usually protected by scales or prophyll(s), or immature flower, protected by bracts, bracteoles and/or perianth segments.	Beentje & Williamson (2016)
<b>canopy</b>		The foliar cover in a forest stand, consisting of its upper layers.	Helms (1998)

<b>canopy closure</b>	<p>Ground area covered by the crowns of trees or woody vegetation as delimited by the vertical projection of crown perimeters and commonly expressed as a percent of total ground area —synonym canopy cover</p> <p>—note crown cover measures the extent to which the crowns of trees are nearing general contact with each other.</p>	Ford-Robertson (1971)
<b>clones</b>	<p>A group of plants produced from cuttings, stump or root sprouts, tissue culture, or some other method that produces offspring genetically identical to the original plant.</p>	Maynard (1996) in FAO (2002)
<b>conversion</b>	<p>A change from one silvicultural/management system to another, e.g. from clearfell to selection forest. Sometimes also used for a change from one (set of) species to another.</p>	Nieuwenhuis (2000) via SilvaVoc
<b>coppice</b>	<ol style="list-style-type: none"> <li>1. A plant derived by coppicing.</li> <li>2. Any shoot arising from an adventitious or dormant bud near the base of a woody plant that has been cut back.</li> </ol>	Burley et al. (2004)
<b>coppice conversion by aging</b>	<p>The low coppice is no longer cut so that stands reach a maturity in which they are able to regenerate naturally by seed. During the waiting period, tending operations (e.g., cleaning, thinning) are applied depending on the stage of development. These interventions are halted after 60-80 years, after which silvicultural systems typical to high forests can be applied in order to regenerate the stands naturally by seed.</p>	Nicolescu et al. (2017)

<b>coppice conversion by replacement</b>		<p>The restoration of such coppice stands for their conversion to high forest is done either by</p> <p>(1) Clear-cutting, followed by planting, mostly of conifer tree species such as pines or Norway spruce;</p> <p>(2) Clear-cutting, followed by manual/mechanical seeding of species such as oaks;</p> <p>(3) Use of high forest silvicultural systems, such as uniform shelterwood cutting.</p>	Nicolescu et al. (2017)
<b>coppice forest</b>		<p>Forest which has been regenerated by allowing regrowth from cut stumps or root suckers, or both, i.e., by vegetative means. Normally grown on a short rotation for small poles, but sometimes, e.g. some eucalypt species, to a substantial size.</p>	IUFRO (2005)
<b>coppice selection system</b>	coppice selection	<p>A coppice system in which only selected shoots of merchantable size are cut at each felling, giving uneven-aged stands.</p>	Nieuwenhuis (2000) via SilvaVoc
<b>coppice stand</b>		<p>Forest stand composed of stools that produce coppice shoots which form the major part of the crop.</p>	Harmer (1995)
<b>coppice system</b>		<p>Silvicultural system in which crops regenerate vegetatively by stump sprouts and the rotation is comparatively short.</p>	Young (1982)
<b>coppice with standards</b>	compound coppice; coppice with standards system	<p>A coppice system in which selected stems are retained as standards at each felling to form an uneven-aged overstorey which is removed selectively on a rotation constituting some multiple of the coppice rotation; a crop partly of vegetative and partly of seedling origin.</p>	Burley et al. 2004

<b>coppicing</b>		<p>1. The production of new stems from the stump or roots.</p> <p>2. To cut the main stem (particularly of broadleaved species) at the base to stimulate the production of new shoots for regeneration.</p>	Burley et al. (2004)
<b>cutting(s)</b>		A small shoot taken from near the end of a branch or the stem of a plant. It is placed in the ground and will produce roots and develop into a new plant which will be genetically identical to the original plant.	Nieuwenhuis (2000) via SilvaVoc
<b>dieback</b>		A term often used to mean 'death'. More correctly, it means a progressive death of a tree or a branch from its extremities towards the roots. Dieback can be reversible.	Burley et al. (2004)
<b>direct conversion of simple coppice</b>		A transition from low coppice to high forest that does not involve another silvicultural system. The method of direct conversion includes (i) conversion by ageing (conversion by full cessation of low coppice cuttings), (ii) mixed conversion (conversion by partial cessation of low coppice cuttings), and (iii) conversion by replacement/restoration.	Nicolescu et al. (2017)
<b>dormancy</b>	dormant bud; latent bud; preventitious bud; latency	A special condition of arrested growth in which the plant and such plant parts as buds and seeds do not begin to grow without special environmental cues.	Young & Giese (1990)
<b>epicormic growth</b>		Growth of lateral buds after the apical bud is damaged.	Young & Giese (1990)
<b>epicormic shoot</b>	water shoot; water sprout; epicormic branch	A shoot arising spontaneously from an adventitious or dormant bud on the stem or branch of a woody plant often following exposure to increased light levels or fire.	Ford-Robertson (1971)

<b>fodder</b>	Coarse food that is composed of entire plants or the leaves and stalks of a cereal crop, and is fed to cattle and horses.	Park & Allaby (2013)
<b>fuel wood</b>	Any wood source that is used, without alteration, as a type of fuel for heating, lighting or cooking purposes. Often called firewood.	Grebner et al. (2013)
<b>high forest</b>	A stand of trees, generally of seedling origin, that normally develop a high, closed canopy.	Ford-Robertson F.C. (1971)
<b>high forest system</b>	Silvicultural system in which forest is managed on rotation sufficient to produce trees large enough for timber production.	IUFRO (2005)
<b>indigenous</b>	Native to a specified area or region, not introduced.	Ford-Robertson (1971)
<b>indirect conversion of simple coppice</b>	This method removes all current species and introduces new species to the area.	Nicolescu et al. (2017)
<b>introduced tree species</b>	An established (not nec...) plant or animal not native to the ecosystem, region, or country.	Ford-Robertson (1971)
<b>invasive tree species</b>	An organism that is nonnative (or alien) to an ecosystem and whose introduction causes or is likely to cause economic or environmental harm or harm to human health = invasive pest species.	Ford-Robertson (1971)
<b>lateral shoot</b>	Lateral means 'at the side', 'towards the side', 'from the side', 'axillary', 'farther from the midline of the body', 'situated towards or at the side of the body'. E:... (4) lateral shoot.	Klein (2008)

<b>layering</b>		The rooting of an undetached branch (= a layer) lying on or partially buried in the soil, which is capable of independent growth after separation from the mother plant.	Nieuwenhuis (2000) via SilvaVoc
<b>leading shoot</b>		The leading shoot is the main shoot which develops from the terminal bud at the top of a tree each year.	Klein (2008)
<b>mixed conversion (coppice)</b>		Conversion by partial cessation of low coppice cuttings. Every 10 years (production of a new management plan), a part of low coppice stands are no longer exploited, while the rest of stands are treated as low coppice. The area of low coppiced stands continuously decreases until they no longer exist, while the area covered with high forests increases and these stands form successive age classes.	Nicolescu et al. (2017)
<b>mixed forest</b>		Forest or woodland consisting of different species either between or within specified areas.	Nieuwenhuis (2000) via SilvaVoc
<b>monoculture</b>	pure stand	A stand of a single species, generally even-aged.	Ford-Robertson (1971)
<b>multi-stemmed tree</b>		“multi-”: comb. prefix meaning many.	Gray (1967)
<b>over-aged coppice</b>	abandoned coppice; aged stools; derelict coppice; neglected coppice; neglected stools; overstood coppice; stored coppice	Coppice woodlands that have been left to grow substantially beyond the normal rotation and developed stools with stems having the characteristic sizes and lengths of high forest trees.	Harmer & Howe (2003)



<b>overmature stand</b>	<p>1. a tree or even-aged stand that has reached that stage of development when it is declining in vigor and health and reaching the end of its natural life span - not nec end of life...</p> <p>2. a tree or even-aged stand that has begun to lessen in commercial value because of size, age, decay, or other factors.</p>	Ford-Robertson (1971)	
<b>plantation</b>	<p>A stand composed primarily of trees established by planting or artificial seeding</p> <p>—note 1. a plantation may have tree or understory components that have resulted from natural regeneration</p> <p>—note 2. depending on management objectives, a plantation may be pure or mixed species, treated to have uniform or diverse structure and age classes, and have wildlife species commensurate with its stage of development and structure</p> <p>—note 3. plantations may be grown on short rotations for biomass, energy, or fiber production, on rotations of varying length for timber production, or indefinitely for other values.</p>	Ford-Robertson (1971)	
<b>pole</b>	A straight, bark-free, tree-length log with one end embedded in the ground that supports power and communication wires, highway sound barriers, and similar structures.	Burley et al. 2004	
<b>pole stage</b>	pole phase	Still-young tree larger than 10 cm dbh, up to about 20-23 cm dbh.	Young (1982)
<b>pollarding</b>	Cutting back, in a more or less systematic fashion, the crown of a tree, with the object of producing a close head of shoots (a pollard) beyond the reach of browsing animals.	Burley et al. (2004)	

<b>provenance</b>		Natural origin of seeds or trees, usually synonymous with “geographic origin”, or a plant material having a specific place or origin.	Young & Giese (1990)
<b>pruning</b>		<p>The removal, close to the branch collar or flush with the stem, of side branches (live or dead) and multiple leaders from a standing tree</p> <p>—note 1. pruning is generally done on plantation trees to improve the tree or its timber, or on urban and rural trees to improve their aesthetics or health</p> <p>—note 2. green pruning is the removal of live branches, dry pruning is the removal of dead branches, and chemical pruning is the application of chemicals, e.g., plant-growth regulators, to the living tree to kill, suppress, or inhibit lateral shoots.</p>	Ford-Robertson (1971)
<b>regeneration</b>		The natural or artificial process of re-establishing tree cover on forest land.	Nieuwenhuis (2000) via SilvaVoc
<b>rotation period</b>	rotation age	Period of years required to establish and grow timber crops to a specified condition of maturity. Applies only to even-aged management.	Young (1982)
<b>seed tree</b>		A tree selected and often reserved for the collection of seed or for natural seeding of a (understocked) regeneration area.	Nieuwenhuis (2000) via SilvaVoc
<b>shelterwood system</b>		A harvesting system in which most of the trees are felled but some are left to provide protection for the new forest by providing either shade or wind protection.	Helms (1998)

<b>shoot</b>	coppice shoot; sprout; spring	A shoot arising from an adventitious bud at the base of a woody plant that has been cut near the ground. In the case of a sucker, the shoot arises from the root of the plant.	Nieuwenhuis (2000) via SilvaVoc
<b>short rotation coppice</b>		Production of woody biomass, generally on agricultural lands, by regenerating new stems from the stump or roots after harvesting and relying on rapid growth, generally over a 1 to 5 years cycle.	ISO EN 16559
<b>shredding</b>	lopping	The repeated removal of side branches on a short cycle, leaving just a tuft at the top of the tree.	Burley et al. (2004)
<b>shrub</b>		Woody perennial plant, seldom exceeding 3.0 m in height, usually having several persistent woody stem branching from the ground.	Young (1982)
<b>simple coppice</b>	low coppice; simple coppice system	A coppice system in which all shoots in a stand are cut at each felling, giving even-aged shoots and stands.	Nieuwenhuis (2000) via SilvaVoc
<b>singling</b>	stored coppice	To reduce the regrowth from a coppice stool to allow a single pole to grow on to form a standard tree.	Park & Allaby (2013)
<b>site index</b>		A species-specific measure of actual or potential forest productivity (site quality, usually for even-aged stands), expressed in terms of the average height of trees included in a specified stand component (defined as a certain number of dominants, codominants, or the largest and tallest trees per unit area) at a specified index or base age.  —note site index is used as an indicator of site quality.	Ford-Robertson (1971)

<b>site quality class</b>		The maximum quantity of material, of given species, that an area is capable of producing under normal conditions, so long as the factors of the locality remain unchanged.	Nieuwenhuis (2000) via SilvaVoc
<b>sprouting</b>		Type of asexual vegetative reproduction in which sprouts arise (i) from the side of a stump (developed from dormant buds) or (ii) between the bark and wood, on the surface of the stump (originated from adventitious buds).	Fujimori (2001)
<b>stool</b>	stump	A living stump (capable of) producing coppice shoots.	Burley et al. (2004)
<b>stool shoot</b>	stool sprout; stump shoot; stump sprout	1. a shoot or new stem/branch emerging from (near) the base of the plant, especially when the stem has been cut; 2. several stems arising from the same root.	Beentje & Williamson (2016)
<b>sucker</b>	root sucker	A shoot arising below group from the roots some distance from the main stem.	Beentje & Williamson (2016)
<b>thinning residues</b>		Woody biomass residues originating from thinning operations.	ISO EN 16559
<b>vegetative regeneration</b>	vegetative propagation; vegetative reproduction	Nonsexual reproduction.	Burley et al. (2004)
<b>veteran tree</b>		1. trees of interest biologically, aesthetically or culturally because of their great age; 2. trees in the ancient stage of their life; 3. trees that are old relative to others of the same species.	Read (2000)

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<b>virgin forest</b>	semi-natural forest; semi-natural ancient woodland	Areas (or forests) that have never been disturbed by human intervention, showing natural development in structure and dynamics. The soil, climate, entire flora and fauna and the life processes have not been disturbed or changed by timber management, cattle grazing, or other direct or indirect anthropogenic influences.	Schuck et al. (2002)
<b>windbreak</b>	shelterbelt	A line of trees or shrubbery planted or manages in such a way as to protect a building or crops, or to alter climate or wind.	Helms (1998)

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*These terms and definitions can be found in the online Multilingual Forestry Glossary, along with illustrations and translations into many European languages.*

***Visit the EuroCoppice website for details:***

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## REFERENCES

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- Beentje, H. & Williamson, J. (2016). *The Kew plant glossary: an illustrated dictionary of plant terms*. Richmond, Surrey, UK: Kew Publishing.
- Burley, J., Evans, J., Youngquist, J.A., (2004). *Encyclopedia of forest sciences*. Elsevier and Academic Press, Amsterdam-Boston-Heidelberg, vol. 4, pp. 1873-1928 (Glossary).
- Dublin, R., Manubay, G., (Ed.) (2007). *Glossary of Urban Forestry Terms for Citizen Foresters*. Tree Trust Community Tree Planting Guide ESRI Press Department of Natural Resources, Parks & People Foundation.
- FAO (2002). *Glossary on forest genetic resources (English version)*. Forest Genetic Resources Working Papers, Working Paper FGR/39E, Forest Resources Development Service, Forest Resources Division. FAO, Rome (unpublished).
- Ford-Robertson F.C. (Ed.) (1971). *Terminology of forest science, technology practice and products*. Washington D.C., Society of American Foresters. 370 pp. (2nd printing)
- Fujimori, T., (2001). *Ecological and silvicultural strategies for sustainable forest management*. Elsevier, Amsterdam-London-New York-Oxford-Paris-Shannon-Tokyo, 398 p.
- Gray, P. (1967). *The Dictionary of the Biological Sciences*. Reinhold, New York.
- Grebner, D., Bettinger, P. & Siry, J. (2013). *Introduction to forestry and natural resources*. Amsterdam Boston: Academic Press.
- Harmer, R. (1995). *Management of Coppice Stools; Research Information Note 259*. The Forestry Authority, Surrey.
- Harmer, R., Howe, J., (2003). *The silviculture and management of coppice woodlands*. Forestry Commission, Edinburgh, 90 p.
- Helms, J.A. (ed.), (1998). *The Dictionary of Forestry*. The Society of American Foresters. CABI Publishing, Bethesda & Wallingford, 210 p.
- Hocker, H. (1979). *Introduction to forest biology*. New York: Wiley.
- ISO EN 16559: *Solid biofuels*. Terminology, definitions and descriptions, International Organization for Standardization, Geneva, Switzerland.
- IUFRO (2005). *Multilingual pocket glossary of forest terms and definitions*. IUFRO SilvaVoc terminology project.
- Kaennel, M., Schweingruber, F.H. (1995). *Multilingual glossary of dendrochronology: terms and definitions in English, German, French, Spanish, Italian, Portuguese and Russian*. Berne u.a: Haupt.
- Klein, E. (2008). *Bilinguales Wörterbuch Biologie*. München: Verb. Biologie, Biowiss. und Biomedizin in Deutschland.
- Maynard, C. (1996). *Glossary of forest genetics*. Unpublished.
- Nicolescu, V.-N., Carvalho, J., Hochbichler, E., Bruckman, V., Piqué-Nicolau, M., Hernea, C., Viana, H., Štochlová, P., Ertekin, M., Tijardovic, M., Dubravac, T., Vandekerkhove, K., Kofman, P.D., Rossney, D., Unrau, A. (2017). *Silvicultural guidelines for European coppice forests. COST Action FP1301 Reports*. Freiburg, Germany: Albert Ludwig University of Freiburg.
- Nieuwenhuis, M., (2000). *Terminology of Forest Management*. IUFRO World Series Vol. 9-en. IUFRO 4.04.07 SilvaPlan and SilvaVoc.
- Park, C. & Allaby, M. (2013). *A dictionary of environment and conservation*. Oxford: Oxford University Press.

## REFERENCES CONT.

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Read, H. (2000). *Veteran Trees: A guide to good management*. English Nature, 176 p.

Schuck, A., Päivinen, R., Hytönen, T., Pajari, B., (2002). *EFI Internal Report 6: Compilation of Forestry Terms and Definitions*. European Forest Institute, Joensuu.

UNEP (1992). *The Convention on Biological Diversity*. Article 2.

Young, R.A. (ed.) (1982). *Introduction to forest science*. John Wiley & Sons, New York-Chichester-Brisbane-Toronto-Singapore, 554 pp

Young, R. & Giese, R. (1990). *Introduction to forest science*. New York: Wiley.

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## EuroCoppice - COST Action FP1301 2013 - 2017

Over 150 experts, researchers and practitioners from **35 European and partner countries** came together to collect and analyse information on coppice forests and their management. A broad range of topics were addressed in five **Working Groups**: (1) Definitions, History and Typology, (2) Ecology and Silvicultural Management, (3) Utilisation and Products, (4) Services, Protection and Nature Conservation, and (5) Ownership and Governance.

Action Members have produced reports and publications for science, policy and practice, raised awareness for important coppice-related issues, highlighted findings at numerous conferences and supported the careers of young researchers. Further information can be found at:

[www.eurocoppice.uni-freiburg.de](http://www.eurocoppice.uni-freiburg.de)

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