

مدیریت پایدار جنگل

جنگل‌های شاخه‌زاد Coppice Forests

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جنگل شاخه‌زاد

جنگلی که عناصر آن از پایه‌های با منشا رویشی شاخه‌زاد به وجود آمده باشد.

منشا درخت:

زایشی (Generative): بذر
رویشی (Vegetative): جست

• جست دهی (stump sprouting)

• جست گروه (stool)

جنگل شاخه زاد

جست (sprout/shoot)

• ریشه جوش (Root sucker)

• ساقه / تنه جوش (Stem sucker)

موقعیت جست / جوانه (Bud)

• پیش بجا (preventitious)

• نابجا (adventitious)

• انتهایی (Terminal)

عوامل موثر بر قدرت جست دهی (sprouting ability)

■ گونه

■ قطر / سن

■ فصل قطع

■ وسیله قطع

■ رویشگاه

■ تاریخچه

پارامترهای مهم برای ارزیابی قدرت جست دهی

- تعداد جست
- ارتفاع
- رویش قطری
- الگوی جست دهی

اهمیت روش شاخه زاد

- سادگی اجرا
- تولید بیومس فراوان در کوتاه مدت
- تنظیم جنگل در جنگل های با سرشت شاخه زاد
- پشتیبانی از گونه های خاص

مکانیسم های تجدید حیات بلوط

به طور کلی بلوطها از دو مکانیسم دانه زاد و شاخه زاد را برای تجدید حیات استفاده می کنند.

در مناطقی که میزان رطوبت زیاد و گرما و نور کمتر است، مکانیسم دانه زاد غالب می شود.

در مناطق خشک و نیمه خشک بیشتر از روش شاخه زاد استفاده می شود.

پنجره تجدید حیات (Regeneration Window)

جنگل های شاخه زاد و بستر اجتماعی - اقتصادی

✓ حضور مردم

✓ چرای دام

✓ جمع آوری هیزم

✓ برداشت محصولات غیر چوبی

پیامدها

- ویژگیهای رویشگاه
- کیفیت درختان
- ساختار
- زادآوری: افق چرای دام



High forest consists of trees that are left to grow a long time; they originate from seed



Simple coppice is harvested frequently on rotation; shoots regrow from the stump



Coppice with standards is a mix between simple coppice and high forest



Short Rotation Coppice (SRC) is harvested more frequently; it is an agricultural crop

Coppice is harvested at **frequent intervals** and **sustainably supplies wood** at a **low cost**. This management is **highly efficient** at producing large amounts of wood in a short time. Coppice forests provide **unique habitat features** that benefit a large variety of vegetation and wildlife, thus contributing to biodiversity. The existence of coppice forest and its future **depends on human management**.

Table 1. Typology of European coppice forests

| | Simple coppice (fig. 1) | Coppice with standards (fig. 2) | Coppice selection (fig. 3) | Pollarding (fig. 4) | Short rotation coppice (fig. 5) |
|----------------------------|---|---|--|--|--|
| Definition | A coppice system in which all shoots in a stand are cut at each felling (Nieuwenhuis 2000) | 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 (Burley et al. 2004) | A coppice system in which only selected shoots of merchantable size are cut at each felling (Nieuwenhuis 2000) | A coppice system in which the crowns of trees are cut back, in a more or less systematic fashion, with the object of producing close heads of shoots (pollards) (Burley et al. 2004, modified) | Production of woody biomass, generally on agricultural land, by regenerating new stems from the stump or roots after harvesting and relying on rapid growth, generally over a 1 to 5 year cycle (ISO EN 16559) |
| Regeneration method | Stool shoots, root suckers | Stool shoots and seeds | Stool shoots | Stem shoots (at various heights) | Cuttings (willow, poplar) or seedlings (eucalypt, black locust) followed by stool shoots |
| Structure | Even-aged | Uneven-aged | Uneven-aged | Even-aged | Even-aged |
| Species | Most broadleaved species: oaks, sweet chestnut, hornbeam, linden, eucalypts, ash, alders, black locust, poplars, birch, European beech, hazel | <i>Upper storey (standards):</i> oaks, elms, ash, sycamore, Norway maple, wild cherry, wild service tree, service tree, black walnut, pines, larches <i>Lower storey (coppice):</i> hornbeam, field maple, European beech, linden, sweet chestnut, hazel | European beech, holm oak | Poplars, willows, ash, plane-tree, beech, chestnut, mulberry, oaks, linden, elms, black locust, maples, hornbeam, hazel | Willows, poplars, black locust, eucalypts |

(Table 1 continued)

| | Simple coppice (fig. 1) | Coppice with standards (fig. 2) | Coppice selection (fig. 3) | Pollarding (fig. 4) | Short rotation coppice (fig. 5) |
|---|---|---|-------------------------------|---|---|
| Typical rotation period | 15 – 30 years | 15 – 30 years (coppice) | 15 – 30 years | 1 – 5 years (up to 25) | 1 - 5 years |
| Potentially occurring in the forest vegetation types... (according to EEA, 2007) | | 4. Acidophilous oak and oak-birch forest (types 4.1 and 4.2) 5. Mesophytic deciduous forest (types 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7) 6. Beech forest (types 6.2, 6.5, 6.6, 6.7) 7. Mountainous beech forest (types 7.1 and 7.8) 8. Thermophilous deciduous forest (types 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8) 9. Broadleaved evergreen forest (type 9.1), 14. Plantations and self-sown exotic forest (type 14.2) | | | Not applicable; mostly on agricultural land |
| Size of product | Small-sized roundwood | Small-sized roundwood and timber | Roundwood of different sizes | Small-sized roundwood | Small-sized (whole) stems |
| Wood products | Firewood, charcoal, industrial roundwood, basketry, hoops, fascines, pea and bean sticks, fencing, poles, tannin, tool handles... | See simple coppice + timber | See simple coppice + timber | See simple coppice + sometimes timber (historically used as fodder) | Wood chips, pulp, basketry, fencing |
| Management options | | Commercial exploitation Conversion Restoration Maintenance for biodiversity and as an element of landscape and culture | | | Commercial exploitation |

The five coppice types and their most important characteristics are summarised in the following figures and table.



Figure 1. Simple coppice of sweet chestnut
(Photo: D. Rossney)



Figure 2. Coppice with standards
(Photo: V.N. Nicolescu)



Figure 3. Coppice selection with European beech
(Photo: O. Cardoso)



Figure 4. Pollard of white willow
(Photo: V.N. Nicolescu)



Figure 5. Willow clone treated as short rotation coppice
(Photo: V.N. Nicolescu)