

Woodlands

by Bernd-Stefan Grewe

For centuries, the woodlands of Europe were not only used for wood production, but were also used intensively for agricultural purposes. This resulted in diverse forms of ecologically heterogeneous woodlands. Due to the increasing economic importance of wood, most states introduced a new form of woodland management from the 18th century onwards, which aimed at maximizing the production of timber in a sustainable manner. In spite of the often considerable resistance by agrarian populations which had previously enjoyed the use of the woodlands, states persisted with the introduction of the new forestry regime. However, foresters were often only successful in enforcing the new regime after the onset of industrialization. Replacement materials and fossil fuels were available, which brought an end to economic dependence on the resources of woodlands.

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The "Wooden Age"

It is difficult to overstate the importance of woodlands in the development of European societies. Reflecting this importance, the economist Werner Sombart (1863–1941) (→ Media Link #ab) described the pre-industrial age as the "wooden age".¹ And justifiably so, as wood was a key resource of pre-industrial and early-industrial societies. It was the most important form of fuel, without which it was impossible to cook, bake bread or fire pottery. Charcoal was needed to smelt and forge iron. Without the potash produced as a by-product of burning, it was not possible to wash, bleach or dye textiles, to make soap, or to melt glass. For many craftsmen, wood was irreplaceable as a material. Specialized craftsmen were particularly dependent on the special material characteristics of particular types of wood, as not all types of wood were suitable for the production of furniture or carriages. Many everyday objects, tools and devices, weaving looms, and even the mechanisms in mills were made of wood. It continues to be used today as a construction material. Not only half-timbered houses and many rural buildings like barns and sheds consisted mainly of wood. Wood was also used in many stone buildings in the form of ceiling beams, floorboards, parquet, stairs, doors, window frames and shutters, and, in particular, the roof frame. Up to the end of the 19th century, most of the means of transport – ships and boats, coaches, traps and carts, and even litters – consisted mainly of wood. Wood accompanied humans through life from the wooden cradle, to the stretcher and the coffin. Wood was simply irreplaceable.²

▲ 1

On the other hand, the true importance of the use of woodlands to those engaged in agriculture was often underestimated, particularly in forestry history, which was invariably written from the perspective of forestry academies, but also in agricultural history. For centuries, farming populations throughout Europe used forests as additional agricultural land, as "bäuerlicher Nährwald" (woodlands as a source of sustenance for farmers).³ In slash-and-burn farming, the former forest floor, which was freshly fertilized with ash, was cultivated for a period of time. Cattle, horses, goats and sheep foraged in deciduous forests and mixed forests. Pigs could feed on mast in oak and beech forests. Additional (winter) fodder was obtained for livestock by cutting grass and plucking foliage. Fallen leaves were an important fertilizer, which was used to keep intensively cultivated tillage plots fertile. In many regions, these forms of agrarian forest use were almost more important for the rural population than the felling of trees for wood.⁴

▲ 2

The interplay of the various forms of forest use and varying topographical and climatic conditions created a wide variety of different cultivated landscapes. Woodlands were partly shaped by humans and were therefore highly heterogeneous in their biological composition, but they also had a dynamic of their own. Trees grow very slowly and often require several decades to reach full height. The natural lifespan of a tree is often a multiple of the lifespan of a human. As a result, changes in woodlands unfold at a different pace than changes in agriculture, for example. After the destruction of a tillage crop, arable land is able to produce a new crop in the very next year. This is not the case with woodlands. If a forest was destroyed during a war, several decades passed before a new forest with similar-sized trees had grown. This characteristic determined in a profound way the manner in which humans treated woodland resources. Almost everywhere, the use of woodlands was governed by set rules and institutions were founded to protect woodlands against excessive use by humans.

▲ 3

The above factors pose a number of problems for the periodization of European woodland history. In addition to differences in growing conditions, and the different political, economic and socio-cultural development of the various regions of Europe, there is a further time-related problem in relation to woodlands. Fundamental changes in the way humans treat woodlands often only manifest themselves after a considerable time-lag. Many processes which transform woodlands – such as overuse or the appearance of new tree species – only become apparent to humans later as "gradual processes", and are thus only reflected in the historical sources long after they have begun. With the exception of the drastic destruction of woodlands, it is often difficult to detect and accurately date major changes and transitions. An environmental history that goes beyond cataloguing the progressive and repeated destruction of nature cannot therefore contain discrete periods with start dates and end dates. At best, it is possible to date the beginning of long-running, planned processes of transformation, which were often initiated by states, but focusing on these processes privileges the state perspective. For the early modern period in particular, such a periodization of woodland history is probably not appropriate.⁵ This article will therefore discuss the most important historical processes affecting European woodlands in terms of their political, economic, social, cultural and ecological consequences.

▲ 4

Woodlands and Power

From a political perspective, woodlands were a realm in which competing claims were made, in which power was exercised, and over which the various protagonists exercised varying degrees of influence. From the 15th century, the most important trend was the continuously increasing control of the state over woodlands, including those held as commonage and the property of cooperatives and private owners. Older institutions and local systems of regulation were dissolved and replaced with a new system of "rational" woodland management. By the end of the 19th century, a professional system of woodland management based on uniform regulations had been established in all European states, and all states had established control over woodlands. This development in the area of forestry was closely intertwined with the process of state formation throughout Europe.⁶ While there were earlier examples in Florence and Nuremberg, it was not until the 16th century that hundreds of woodland regulations appeared in central Europe, which legitimized the authority of the state over woodlands by complaining about deforestation and over-exploitation.⁷ These complaints were not exclusively concerned with the protection of woodlands, but were primarily aimed at establishing the control of the ruler over woodlands. Even the smallest potentates participated in the avalanche of regulations by promulgating their own forestry regulations. States such as Sweden and France led the way in terms of the regulation of forestry at the national level. The consolidation of state power was further advanced in these states than in the German-speaking territory, in the Mediterranean states, in the Balkans or in eastern Europe. In territories where the power of the state remained weak and a small number of officials were responsible for very large areas of woodland, however, the new regulations could only be enforced loosely or not at all in the face of opposition from the woodland owners and the rural population. In many cases, traditional forms of woodland use continued, as evidenced by the frequently applied sanctions for so-called "Forstfrevel" (infringement of forestry laws). In many territories, the income from these fines was higher than the income from the sale of wood.

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It was only after the massive expansion of the administrative apparatuses of states in the Napoleonic era that state control over forests was taken to a new level in France and elsewhere. This process can be found in Sweden, north-western and central Europe, as well as northern Italy.⁸ A rapid increase in the number of foresters and woodland inspectors made it possible to organize the running of the forests better and to monitor use more closely. These reforms

were usually triggered by financial crises, which were the primary motive for the establishment of institutions to manage woodlands. This is demonstrated by the fact that these new institutions were usually under the direct supervision of the ministry of finance. As early as the 17th and 18th centuries, many rulers with woodlands which were suitably located for river transport – in the Baltic and Scandinavia, as well as along the upper reaches and tributaries of the Rhine – made large sums out of long-distance timber trade with British and Dutch merchants. Similar to state-owned lands, state mines or, subsequently, railways and the postal service, the state forestry authority developed into a kind of state company, which was expected to produce profits for the exchequer. The sale of wood also yielded large revenues in the 19th and 20th centuries, prompting states to establish forestry schools and forestry academies and to insist that all foresters be professionally trained.⁹

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Economics of Woodlands

From an economic perspective, a similar development path occurred throughout Europe. This began with the multi-functional use of woodlands, for which usage rights were more important than legal ownership, and progressed to state-managed woodlands, which concentrated primarily on the production of timber. There was also a movement away from a type of resource use which was organized on a collective – often cooperative – basis towards a commercialization of woodland products. These products were no longer exclusively sold at local markets, but became commodities of an increasingly integrated global market. The spatial hierarchy changed. Regions formerly on the periphery developed into centres of worldwide networks, while regions which had previously been important for the production of coal and steel due to their large forests completely lost their importance. Woodlands lost their role as key resources for diverse areas of production, as wood-based materials were increasingly replaced by fossil fuels and new materials.

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The impetus for the commercialization of wood was provided by the large fleet-building programmes of Venice (13th–16th centuries), the Netherlands (16th century) and England (16th and 17th centuries). In the Baltic region, the Adriatic and in the river systems of the Rhine and Po, a substantial long-distant trade in timber developed. In France, the navy was given preferential access to felled timber throughout the large territory of the state. In this way, France supplied its own shipyards with the required timber and in this case long-distance trade in timber was conducted within the state's borders.¹⁰ In the central European hinterland, ironworks, salt-works and glassworks were the largest consumers of wood in the pre-industrial era. Regulation of the wood market in the early modern period was often patently aimed at securing the supply to these trades in order to increase profits from the sale of wood. Due to high transport costs, wood from forests which were remote from transport networks, often was commercially viable only when used for supplying trades which depended on charcoal and potash.¹¹

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From the end of the 18th century, commercialization increasingly extended to the entire market for wood, with the result that in many parts of Europe even firewood had to be bought with cash.¹² Even in the case of communally owned woodlands, increasingly less timber was distributed among community members for free. Many communities financed their investments in schools, churches, cemeteries, fire brigades, wells, washing places, water supplies and road-building through the proceeds from public wood auctions. Since monopolies or oligopolies often existed in the wood market at the local level, rising wood prices were not necessarily indicative of depleted tree stocks, but were often due to limited supply and increasing demand. With the extension of the network of forest roads and rafting streams, as well as railway construction, even remote villages were integrated into this commercialized wood market. However, this increasing supply did not cause prices to fall, as demand also continued to increase.¹³ In rapidly industrializing countries such as Germany and Belgium, domestic production could no longer meet the demand for wood from the 1860s, and they were dependent on imported wood, primarily from the Baltic region. Even though the fossil fuel coal noticeably reduced the demand for wood as a fuel, and new materials such as soda and artificial fertilizers partially replaced potash and forest litter respectively, the demand for timber continued to increase. As a result, the state forestry authorities of many German states, which had much earlier geared towards timber production, continued to be commercially very successful.¹⁴

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By the early 19th century, woodlands had lost their functions as additional land and "Nährwald" for farming communities. The forestry authorities did their best to prevent the traditional use of woodlands for fodder and fertilizer (litter) collec-

tion. However, these measures only yielded success as – parallel to the forestry regulations and prohibitions – agricultural reforms were enacted or alternative materials became available, which reduced dependence on the resources of woodlands. These developments mainly occurred in central European regions. In many Mediterranean countries and in eastern Europe, the strong connection between agriculture and forestry existed for considerably longer. The development in France falls between these two poles, as the state management of woodlands was highly developed there, but the interests of the rural population were of considerable political importance to the French governments of the 19th century.¹⁵

▲ 10

Woodlands and Society

From the perspective of social history, the most important developments concerning woodlands were the remarkable growth in population from the 15th century and the associated large-scale migration, which were among the most important factors affecting environmental changes generally. Additionally, increasing numbers of social groups were excluded from the use of woodlands and experts gained hegemony over all services concerning woodlands. In most cases these processes increased pressure on woodlands – not only through the growing consumption of firewood and timber, but also through increasing quantities of livestock and the associated need for more livestock feed. Most rights of usage of woodlands were restricted to specific groups of people, such as full burgesses of a borough or members of a cooperative. All those who had rights of usage and the owners of woodlands had a common interest in preventing the extension of usage rights to others as far as possible. They therefore attempted to withhold such rights from newcomers. This demonstrates that there was a clear awareness that natural resources were not limitless.

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This traditional exclusion of newcomers by rural communities with limited resources was overtaken by the increasing exclusion of all agricultural users from woodlands, a process which was pushed forward by the forestry authorities from the late-18th century. This process initially resulted in a large wave of court cases, in which ownership disputes were resolved, rights of usage were established and rulings were made on the legality of measures adopted by the forestry authorities.¹⁶ The fact that woodlands were a central source of conflict in the pre-industrial age is evidenced by the fact that the process of recording and contractually guaranteeing rights concerning woodlands commenced remarkably early. The issue of woodlands featured prominently in the German Peasant War, but also in other social and political protest movements of rural society. In northwestern and central Europe, rural protests only abated gradually from the mid-19th century, while such protests remained a frequent occurrence in the Iberian Peninsula and the Mediterranean region for longer.¹⁷

▲ 12

The exclusion of agrarian users from woodlands could present a serious threat to their livelihoods. Where agriculturalists could not compensate for the associated loss of productive capacity by other means and, in particular, where small, medium-sized and semi-independent farmers did not have the financial means to acquire the alternatives (fodder, fertilizers, coal), offences against forestry law were particularly common, resulting in the criminalization of rural underclasses. Those who did not have the necessary financial means often had no other choice than to help themselves illegally.¹⁸

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As a result of internal migration (→ Media Link #af) to industrial cities and long-distance migration – primarily to America (→ Media Link #ag) – population increases did not put more pressure on woodlands from the mid-19th century on. Together with the availability of new materials, this migration actually noticeably reduced pressure on woodlands. There was not only a strong decline in illegal felling, but also in legal cases to establish ownership and rights of usage, and in forms of social protest. This fact supports the thesis that the relative importance of woodlands declined.

▲ 14

From the late-18th century, woodlands were controlled by a specialized professional group, the foresters, in most regions. Trained in forestry schools and forestry academies, foresters managed woodlands more scientifically. Their work was governed by a special code of conduct, and they defined their activity as selfless service in the public interest, eschewing short-term interests.¹⁹ This professionalization, which was similar to that of doctors and lawyers, enabled

foresters to establish themselves as undisputed experts and to monopolize the market for forestry services throughout Europe.²⁰

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From the late-19th century, a new group of woodland users emerged, as city-dwellers discovered woodlands as a space for recreation. Tourists (→ Media Link #ah), walkers and sports enthusiasts began to re-populate woodlands, particularly on weekends. Nature enthusiasts and walking clubs erected huts in the woodlands and established a network of marked walking paths. Woodlands were increasingly signposted and furnished: At vantage points, railings were erected to prevent walkers from falling over the edge; benches provided an opportunity to rest and have picnics; signposts showed the way and provided information about distances and attractions.

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Forest Culture

In the following discussion of the cultural dimension of woodlands, this term does not refer to how forests were represented in art, music and literature. Of more importance in this context is the historical ethnological perspective, which questions how people who used woodlands thought of woodlands, what meanings they attached to them, and how they explained and legitimized their behaviour. Conflicts regarding woodlands demonstrate that a number of competing concepts regarding how woodlands should be constituted and used always existed in parallel.²¹ Rather than discussing clear phases of development, it is therefore easier to depict this cultural dimension by describing the various poles of thought, namely the following oppositional pairs: stability/balance and growth; the striving for profit and limitation to necessity and subsistence; individual and collective interests; and sustainability and over-exploitation.

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For agriculturalist forest users, forests played an important role in supplementing their supply of fodder and fertilizer. In most cases, these users were not interested in maximizing returns, but in "subsistence", the "basic requirements" of the household. In contrast, the timber merchants and trading companies of the 17th and 18th centuries were the avant-garde of an increasingly capitalist orientation in forestry. Notoriously underfunded rulers with their extravagant courts, luxuriant lifestyles and high military spending began to view woodlands not only as a place for the symbolic staging of hunts, but as a source of income. This also applied to towns and communities, which also began to sell wood. With the onset of the commercialization of wood, a new way of thinking about woodlands began to emerge. From the mid-18th century, cameralists (adherents of the administrative science of the German absolutist states) in particular discussed ways of permanently raising wood production without endangering the sustainability of supply. Ecological concerns did not enter into considerations of the sustainability of forests, which only focused on the economic goal of producing profits on an on-going basis. At this stage, technologies were developed and honed to systematically study the development of woodlands, and to plan and manage them. From the 18th century, woodlands were increasingly surveyed and mapped, tree stocks were statistically documented, and further measures were planned. In addition to the harvesting of wood, systematic tree-thinning, planting and seeding was conducted. This development, which began in particular in the reforming German states at the beginning of the 19th century, quickly spread from the German forestry academies to neighbouring countries, which soon followed suit in founding centres for the training of foresters in the next decades.²² This development occurred comparatively late in Britain, where "rational forestry management" was introduced via India and Scotland.²³

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Up to the end of the 20th century, rational forestry management defined the design of woodlands, which were systematically planned out according to the so-called "forestry management plan" (*Forsteinrichtungsverfahren*), which usually ran over a number of generations. Germany was unusual in that high forest was preferred there because of the large volumes of valuable timber it produces. In France and in many regions of the Mediterranean, on the other hand, coppice and mixed coppice-high forest continued to prevail, as these forms were more compatible with the interests of the rural population. In these regions, forestry policy was restricted by political considerations and opposition, but French and Italian foresters were no less in thrall to the ideal of high forest than their German counterparts.²⁴

▲ 19

The cultural changes in woodland management manifested themselves in the development of a specialist forestry jar-

gon: The woodlands were "arranged" (*eingerichtet*), agricultural use of woodlands was disparaging referred to as "peripheral uses" (*Nebennutzungen*), and "forestry" (*Forstwirtschaft*) and "silviculture" (*Waldbau*) emerged as equivalent terms to "agriculture" (*Landwirtschaft*) and "horticulture" (*Ackerbau*). Generally, rational woodland management was viewed as important pioneering work comparable to the initial settlement of agricultural land, and there was a desire to transfer this work to the European colonies (e.g. Algeria, India, Indonesia, and Tanganyika).

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The forestry discourse, as it developed in the specialist publications and forestry academies, defined forestry policy throughout Europe.²⁵ Professional foresters had established a cultural hegemony – as defined by the Marxist philosopher Antonio Gramsci (1891–1937) (→ Media Link #ai) – over woodlands. In contrast, the concepts of woodlands created by poets, artists and musicians, in which woodlands sometimes served only as a canvas onto which romantic ideas and nationalistic thoughts were projected, were of lesser importance. These concepts were indeed important for the emergence of the hiking movement (*Wanderbewegung*) and nature enthusiasts, but they did not have a marked influence on the appearance of woodlands.

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Woodland Ecosystem

The biological composition of woodlands has been influenced by the interaction between humans and the rest of nature over centuries. To simplify somewhat, the most important changes to the woodland ecosystem were the change from heterogeneous woodlands to woodlands with homogenous tree stocks, the trend away from mixed forest with a high degree of biodiversity and towards plantation-like monocultures with a high proportion of conifers, the change from extensive forest usage to intensive silviculture, and from overuse and over-exploitation to a sustainable form of cultivation.

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From the Middle Ages, woodlands were used in a multitude of ways, and this use affected the composition of the flora and fauna. In areas where woodlands provided grazing and fodder for large quantities of livestock, tree species which require a lot of light to grow – such as oak – thrived. By contrast, beech trees – which prefer more shaded conditions – became less common in such areas. Livestock grazing gave rise to increasingly large bare patches and clearings. In many instances, the surveyors of the 18th century had difficulty in deciding whether an area was a pasture sparsely covered with trees or a very thin forest. The edges of these clearings had a far greater diversity of tree species than the dark coniferous forests and Douglas fir forests of the 19th century. In areas where woodlands were used too intensively – for example, by a combination of extensive felling and subsequent shifting cultivation or woodland pasture – woodlands often could not regenerate. Since changes in woodlands are often only visible over a long period, tree stocks could be plundered and "devastated" almost imperceptibly. In many parts of Europe areas of heathland bear witness to such devastating long-term use patterns. While complaints about the over-exploitation and destruction of woodlands became particularly vociferous around the time of the French Revolution (→ Media Link #aj), many woodlands were already under real threat prior to this. The intervention of the state forestry authorities, justified in terms of "wood shortage" and protecting the woodlands, was somewhat ambivalent. On the one hand, the rulers had an obvious interest in gaining increased control over the increasingly valuable wood resources;²⁶ on the other hand, it was indisputable that woodlands were gradually being overused.²⁷ However, it is not possible to say which of these factors was most important. This can only be decided by careful examination of the evidence on a case-by-case basis. In most cases, both aspects were involved.

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However, the effects of the intervention of the forestry authorities were not always positive from an ecological perspective. Many woodlands which were heterogeneous in their composition and featured a wide variety of tree species were replaced by forests which consisted of only one or two tree species, and the trees were all the same age and same height. The trees were planted more densely and the forests were consequently darker; plants and tree species which were unwanted were suppressed or literally "eradicated".²⁸ In homogenous woodlands, it was possible to plan wood production in a sustainable fashion, and over-exploitation and gradual overuse would have immediately become apparent. In woodlands which were used in a multifunctional way, and which consisted of many different tree species and trees of different ages and sizes and varying tree density, it was very difficult to prove or prevent any such gradual overuse. This was another reason why the foresters sought to prevent the "peripheral use" of forests by farmers and

favoured the planting of coniferous forests, which eliminated many of the traditional forms of use, such as grazing. Woodlands which consisted of trees of the same age planted in successive stages were easier to plan and monitor and thus contributed considerably to the sustainability of woodlands. However, it was not possible to achieve ecological sustainability with this form of woodland management. Indeed, in the 19th century, many foresters and some forestry authorities already recognized the disadvantages of the new woodlands and developed alternative concepts of woodlands, such as the "mixed woodland" (Karl Gayer (1822–1907) (→ Media Link #ak)) and "near-natural silviculture", which, while not entirely achieving ecological sustainability, are considerably more diverse and resilient than many coniferous forests.

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Whereas it had often been difficult to distinguish between woodlands and pasture in the 18th century and many transitional zones existed, a clearly visible, sharp border between woodlands and fields subsequently emerged in the landscape. The new, rationally planned and industrialized woodlands now had the sole purpose of wood production. In the period of 1750 to 1850, this long-running process led to the emergence of a new cultivated landscape in many parts of central Europe.

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
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