

**Bibliography, DENMARK****Peter Friis Møller***Historical perspectives and milestones in the research on natural forests*

Aaby B. (1983): Forest development, soil genesis and human activity illustrated by pollen and hypha analysis of two neighbouring podzols in Draved Forest, Denmark  
Danmarks Geologiske Undersøgelse 2, 114 pp.

**Abstract:** The paper presents a study based on pollen and hypha analysis of vegetational development, soil genesis, human activity, and interaction between the processes at two small sites only 7 metres apart, located in an old, natural *Fagus-Quercus* stand in the 200 ha large Draved Forest in SE Denmark.

At the site, a primeval *Tilia* forest was dominant until the Late Subboreal, when human interference is first detected in one of the diagrams. This interference, presumably leaf-hay gathering, was practised until around 1500 AD, but did not substantially change the forest composition. The mixed *Tilia* vegetation persisted until about 1650 AD, when the *Tilia* trees were felled and succeeded by a *Quercus-Fagus-Betula* vegetation which has dominated the area since. The investigation has demonstrated a close relationship between soil development, forest composition and human activity. The development of a podzol was completed within a period of 300 years in one of the sections, while it took more than 2000 years to reach the same stage at the other site, only 7 metres away.

**Key-words:** Pollen analysis, forest history, human impact, forest soil types, podzol, raw humus, hypha analysis, natural forest.

Andersen S.T. (1984): Forests at Løvenholm, Djursland, Denmark, at present and in the past.  
Det Kongelige Danske Videnskabernes Selskabs Biologiske Skrifter 24/1, 208 pp.

**Abstract:** The paper presents a study including geological substrate, soils, present vegetation and vegetational history in a 9 ha large forest reserve of old, semi-natural stands of *Fagus sylvatica* and *Quercus petraea* within the large Løvenholm-Fjeld forest complex in east Jutland, Denmark. The Holocene vegetational development was studied in small kettle-holes and soil sections. Four natural forest communities occurred on dry soils in the past, and human exploitation was most apparent in three periods. The decline of *Tilia cordata*, *Corylus avellana*, *Hedera helix* and *Viscum album*, and the history of *Quercus petraea* are discussed.

**Key-words:** Pollen analysis, forest history, human impact, forest soil types, podzol, raw humus, natural forest.

Bradshaw R.H.W., Holmqvist B. (1999): Danish forest development during the last 3000 years reconstructed from regional pollen data. *Ecography* 22, 53-62.

**Abstract:** Most present Danish forest types are a direct result of recent silvicultural practice. We use fossil pollen data converted into estimates of tree abundance to map the development of forest types during the last 3000 years. The forest types were clusters in an artificial neural network based on all available European Holocene pollen data. Diverse deciduous forest types found 3000 years ago were replaced by less diverse *Fagus*-dominated types over a period of 2000 years. The present day map contained many new combinations of tree species, dominated by *Picea* and *Pinus*. The association between the increase in non-forest communities and establishment of *Fagus* suggests that anthropogenic activity has accelerated the loss of species-rich deciduous forest with abundant *Alnus*, *Corylus*, *Quercus* and *Tilia*. We conclude that the natural forest composition of Denmark would be deciduous forest today with a significant presence of *Fagus sylvatica*. Recent forest development has created a break in compositional

continuity with the past that is unnatural and has posed problems for forest-dependent biota.

Key-words: Forest history, Forest type maps, human impact, natural forest, pollen analysis.

Bradshaw R.H.W., Mitchell F.J.G. (1999): The palaeoecological approach to reconstructing former grazing-forest interactions. *Forest Ecology and Management* 120, 3-12.

Abstract: Interactions between grazing animals and vegetation are assessed from three time perspectives: millions, thousands and hundreds of years. Data abundance and quality are highest for recent time periods, but geological data provide a background to the understanding of present-day grazing-vegetation interactions. The Quaternary glaciations and recent anthropogenic influence have contributed to the loss of European mega-herbivores. The geological record from the Eemian interglacial in Denmark suggests that presence of elephant and rhinoceros did not create widespread openings in forest cover. Large populations of giant deer in Ireland became extinct 11 000 years ago. We propose a theory that the giant deer were sufficiently abundant to convert juniper scrub communities into open grassland at a regional scale. The balance between grazers and browsers has undergone continuous change during the last 10 000 years with significant consequences for forest composition and structure. Hunting statistics and archival records permit crude reconstructions of population dynamics for certain ungulate species. High resolution pollen analysis and long-term monitoring generate reconstructions of vegetation that can be compared with fluctuating grazing pressure during the last few hundred years. Such data can be used to validate simulation models of grazing-vegetation interactions.

Key-words: Denmark, Eemian, extinction, Ireland, late-glacial, mega-herbivores, pollen analysis.

Fritzøger B., Emborg J. (1996): Landscape history of the deciduous forest Suserup Skov, Denmark, before 1925 *Forest and Landscape Research* 1, 291-309.

Abstract: Based upon a wide range of historical sources, the article attempts to give an impression of the structure, development and woodland management of Suserup Skov forest in eastern Denmark (now a fairly isolated woodland) from the Middle Ages until about 1925. Until 1807 Suserup Skov was part of a large woodland area covering the fields and meadows of Suserup and its neighbouring villages. Hence, during Medieval and Early Modern times, it was profoundly influenced by traditional, rural woodland management (pannage, pasture, coppicing etc.). By its enclosure in 1807, Suserup Skov was segregated from the surrounding countryside as a forest reserve to serve primarily as a wood producer. Since the 1850s, however, it had been managed as a minimal intervention forest even though some wood production continued. In 1925 it was conserved for biological and recreation reasons. Hence, following a long history of intensive human interference, during the last 150 yr Suserup Skov has only been minimally influenced by man.

Key-words: Landscape history, ancient woodland, semi-natural, forest management, nature conservation.

Hannon G.E., Bradshaw R.H.W., Emborg, J. (1999): 6000 years of forest dynamics in Suserup Skov, a semi-natural Danish woodland *Global Ecology and Biodiversity Letters* (in press).

Abstract: The history of a forest stand over the last six thousand years has been reconstructed by studying pollen, macrofossils and charcoal from a small, wet hollow in Suserup Skov on the island of Sjælland in eastern Denmark. The earliest recorded forest was *Tilia*-dominated but contained an intimate mixture of many different tree species that included *Acer campestre*, *A. platanoides*, *Alnus glutinosa*, *Betula pubescens*, *Corylus avellana*, *Frangula alnus*, *Fraxinus excelsior*, *Malus sylvestris*, *Populus tremula*, *Pinus sylvestris*, *Quercus robur*, *Q. petraea*, *Salix* spp., *Sorbus aucuparia*, *Tilia cordata* and *T. platyphyllos*. The preserved fruits of *T. platyphyllos* confirm its hitherto doubtful status as a native member of the Danish flora. The present day woodland developed after a period of intensive anthropogenic disturbance between c. 600 BC

and 900 AD, during which time open canopy conditions prevailed at Suserup. *Fagus sylvatica* and *Fraxinus excelsior* are the dominant trees at present, together with some *Quercus robur* and *Ulmus glabra*.

Charcoal was present in the sediments from most time periods except at the *Ulmus* decline. In the last 1000 years of the sequence - the period of *Fagus* dominance - charcoal counts were consistently low. *Pinus sylvestris* was a natural component of this primarily deciduous forest, and the last macrofossil find dates from c. 900 AD. Macrofossil *Pinus* cone scales recorded c. 1800 AD originate from planted individuals. Prior to *Fagus* dominance, the forest had an open structure partly caused by frequent, low-intensity fires associated with the presence of *Pinus sylvestris*. The replacement of *Tilia* by *Fagus* in this forest was catalysed by human activity. If the forest had not been so disturbed, the rich diversity of trees would most likely have persisted up to the present time, with only a moderate-sized *Fagus* population.

**Key-words:** *Fagus*, palaeoecology, fire, macrofossil, *Tilia*, *Pinus*, Denmark, forests

Iversen J. (1973): The development of Denmark's nature since the last glacial

Danmarks Geologiske Undersøgelse V. Series No. 7-C, 126 pp.

**Abstract:** The paper gives an overview of the nature and forest development in Denmark from late glacial (Weichselian Glaciation) until around 1000 AD, including the prehistoric mammal fauna, ecological conditions and tree species occurrences and competition as well as the role of climate, soil conditions and human influence.

**Key-words:** Forest history, pollen analysis, human impact, elm decline, soil processes, *Tilia*, *Fagus*, *Hedera*, *Viscum*.

Møller P.F. (1988): Registration of natural woodlands in the state forests in Denmark. (Overvågning af naturskov 1987 – registrering af gammel naturskov i statsskovene) (In Danish with summary in english) Skov- og Naturstyrelsen, 395 pp.

**Abstract:** Registration and description of the remaining old stands of ancient (semi-natural) deciduous woodland in the state-owned forests in Denmark. The report describes 425 localities with a total of 1826 hectares - approx. 2 % of the entire, state-owned forest area. The major part of the area consists of stands dominated by *Fagus sylvatica* or by formerly coppiced *Quercus robur* with *Populus tremula*, *Betula*, *Tilia*, *Sorbus* or with *Quercus petraea* and *Carpinus betulus*. A minor part are swamp forests with *Alnus glutinosa* and *Fraxinus excelsior* or rich mixed deciduous woodlands of *Alnus*, *Betula*, *Quercus*, *Corylus*, *Carpinus*.

**Key-words:** Ancient woodland, natural woodland, natural forest, nature conservation

Møller P.F. (1990): A temporary registration of natural woodlands in Denmark (Naturskove i Danmark. En foreløbig opgørelse over danske naturskove udenfor statsskovene)

Report for Skov- og Naturstyrelsen, 569 pp.

**Abstract:** Registration of known, old stands of ancient (semi-natural) deciduous woodland outside the state-owned forests in Denmark. The report describes 549 localities and agglomerations of sites on the basis of existing knowledge of species content, structure, forest history, conservation and management status etc. The described woodlands consists of *Fagus sylvatica*, *Quercus robur*, *Q. petraea*, *Fraxinus excelsior*, *Alnus glutinosa*, *Betula pubescens*, *B. verrucosa*, *Tilia cordata*, *T. platyphylla*, *Carpinus betulus*, *Ulmus glabra*, *U. laevis*, *Acer platanoides*, *A. campestre*.

**Key-words:** Natural woodland, natural forest, ancient woodland, nature conservation

#### *Stand structure research in natural forests*

Emborg J., Christensen M., Heilmann-Clausen J. (1996): The structure of Suserup Skov, a near-natural temperate deciduous forest in Denmark Forest and Landscape Research 1, 311-333.

**Abstract:** Suserup Skov (19.2 ha) is a near-natural temperate deciduous forest in eastern Denmark dominated by *Fagus sylvatica*, *Fraxinus excelsior*, *Quercus robur* and *Ulmus glabra*. The aim of this paper is to present and analyse basic data on its structure, as a basis for further studies. A total inventory including all trees greater than or equal to 3 cm dbh (diameter at breast height) showed an average density of 959 stems/ha, an average basal area of 41.1 m<sup>2</sup>/ha and an average standing volume of 722 m<sup>3</sup>/ha. Based on these data a stem-position map including a 50X50 m grid was made. The forest was divided into 3 parts. Part A, dominated by *Fagus*, was characterized by minimal human impact during the last 200 yr. Part B, grazed until 1792, is now dominated by *Quercus* and *Fagus*. Part C, a strip along a lake side, is in wet places dominated by *Alnus glutinosa*. The diameter distributions of all parts resemble negative exponential functions for trees of 3-60 cm dbh, typical for natural temperate forests characterized by relatively frequent but small disturbances. A major regeneration event after the forest was fenced in 1807 is still reflected in the diameter distributions. *Fagus sylvatica* is profiled as a shade-tolerant 'climax' species, *Ulmus glabra* as a shade-tolerant understorey species, *Fraxinus excelsior* as a gap-specialist and *Quercus robur* as a light-demanding species slowly being ousted. *Tilia platyphyllos* and *Acer pseudoplatanus* have successfully established expanding colonies in Suserup Skov. Several successional processes occur within this relatively mature system, confirming the modern view of vegetation change, and emphasizing disturbances and continuous change as the norm.

**Key-words:** Basal area, climax forest, diameter distribution, disturbance, *Fagus sylvatica*, *Fraxinus excelsior*, *Quercus robur*, standing volume, succession, *Ulmus glabra*

Vejre H., Emborg J. (1996): Interactions between vegetation and soil in a near-natural temperate deciduous forest Forest & Landscape Research 1, 335-347.

**Abstract:** The interrelationships between geology, physiography, soils and trees were examined in the near-natural temperate deciduous forest of Suserup Skov in eastern Denmark. Surveys on soil, physiography and geology divided the forest into two parts, one dominated by glacial deposits, and another dominated by lacustrine sediments. On glacial till soils the vegetation distribution reflects the past grazing intensity and land use. Beech-ash (*Fagus sylvatica*-*Fraxinus excelsior*) communities dominate on the steepest slopes, which are considered the least grazed, while oak (*Quercus robur*)-beech-ash dominate in the level areas, indicating light open conditions due to grazing in the past. On the lacustrine soils the vegetation reflects texture and drainage regime. Beech-ash communities dominate the dry soils, while oak is present along with beech and ash on the imperfectly drained soils. Ash is omnipresent, apparently independently of soil type or drainage regime. It is concluded that tree distribution is mainly caused by past land use (grazing), and only to a limited extent caused by topography and soil characteristics. Based on soil analysis it is estimated that the CaCO<sub>3</sub> has been leached out of the upper 100 cm of the glacial soils, equivalent to approximately 7500 Mg CaCO<sub>3</sub>/ha in the least disturbed part of the forest requiring approximately 1500 mmoles acid equivalents year<sup>-1</sup> m<sup>-1</sup> since the termination of the last glaciation approximately 10 000 yr BP. It is concluded that the ecosystem is an open system, continuously releasing nutrients by chemical weathering of the soil minerals and subsequent loss of the released nutrient elements by leaching.

**Key-words:** soil vegetation, natural forest soil, soil development, weathering

#### *Gap dynamics research, regeneration*

Emborg J. (1998): Understorey light conditions and regeneration with respect to the structural dynamics of a near-natural temperate deciduous forest in Denmark. Forest Ecology and Management 106/ 2-3, 83-95.

**Abstract:** Suserup Skov is a near-natural temperate mixed deciduous forest dominated by *Fagus sylvatica* L. (beech) and *Fraxinus excelsior* L. (ash) with some *Quercus robur* L. (oak), and

*Ulmus glabra* Huds. (elm). The forest dynamics in Suserup Skov can be a cycle, a sequential shift between a series of developmental phases: innovation, aggravation, early biostatic, late biostatic, and degradation phases. Climax microsuccession from ash to beech occurs as an integral part of the forest cycle. The spatial match to the forest cycle is a shifting mosaic of the same phases. The light conditions at the forest floor and the regeneration of beech and ash were studied with regard to the mosaic-cycle. The relative light intensity (RLI) and the variation in RLI (CV-RLI) were measured in patches representing different phases of the mosaic-cycle. RLI and CV-RLI were compared between phases by analyses of variance, the RLI-model as well as the CV-RLI-model were statistically highly significant. RLI was below 2 % in all phases of the forest cycle, except in gaps (degradation and innovation phases). In gaps RLI increased to about 10 %, making regeneration of ash and beech possible. CV-RLI was higher under ash dominated canopies than under beech-dominated canopies. Regeneration of ash and beech did not survive at RLI below 2 %. At RLI above 3 %, regeneration of both ash and beech developed successfully. Successful establishment and development of ash and/or beech regeneration only occurred in gaps. Advance regeneration of both beech and ash occurred under smaller, often temporary, canopy gaps. In an examined gap, ash established first, responding with rapid height growth at increasing light levels. Beech was established at the next mast year. Under the ash plants RLI was above 3 %, which made the establishment and development of a beech understorey possible. The studied gap represents the beginning of a successional shift from ash to beech within the forest cycle. The results have practical implications for nature-based silviculture, especially concerning choice of regeneration strategy and management of stand structures in order to improve the conditions for regeneration.

**Key-words:** Gap-dynamics, succession, temperate-deciduous-forest, near-natural-state, regeneration, understory-light-conditions

#### *Successional development, disturbances*

Emborg J., Christensen M., Heilmann-Clausen J. (in prep.): The structural dynamics of Suserup Skov, a near-natural temperate deciduous forest in Denmark. Forest Ecology and Management (Accepted).

**Abstract:** The study focuses on the structural dynamics of a near-natural temperate deciduous forest in Denmark as a reference for forestry. The study was conducted in Suserup Skov (19.2 ha), an ancient woodland with a long history of low human impact. It is a mixed deciduous forest dominated by *Fagus sylvatica* L. and *Fraxinus excelsior* L. with some *Quercus robur* L. and *Ulmus glabra* Huds. The dynamics and structures of Suserup Skov can be described in time and space according to the mosaic-cycle concept.

A specific model of the forest cycle in Suserup Skov was developed, including five sequential phases. The typical duration of each phase was determined: Innovation (14 yr.), Aggradation (56 yr.), Early Biostatic (96 yr.), Late Biostatic (108 yr.) and Degradation phase (10 yr.), equalling some 284 yr for the full cycle. In principle the forest cycle takes place at any given patch of the forest, asynchronous from patch to patch, resulting in a shifting mosaic of the constituent phases. The mosaic, mapped in a 10.65 ha plot in 1992, had an average patch size of 839 m<sup>2</sup>, ranging from 100 to 12730 m<sup>2</sup>. The patches of the shorter phases (Innovation, Degradation) were on average considerably smaller than the patches of the longer phases, which can be explained partly by fusion of neighbouring patches. The aggregate areas of each phase were almost directly proportional to their respective duration, suggesting that the shifting mosaic was close to steady state. The disturbance regime and disturbance history of Suserup Skov is discussed. It is concluded that several disturbances of smaller scale has occurred during the last centuries and that the most influencing recent disturbance has been the long period of human influence by rural, woodland management (pannage, pasture and coppicing) before the enclosure of the forest

in 1807. The Suserup Skov example shows that a temperate deciduous forest under a relatively calm disturbance regime can develop into a very fine-grained mosaic, apparently approaching the shifting mosaic steady state within a rather small area. The structural steady state in Suserup Skov occurs, even though the overall species composition is still under successional change. Further, 'climax microsuccession' from *Fraxinus* to *Fagus* occurs as an integral part of the forest cycle in Suserup Skov. Cyclic and directional processes are intermingled in Suserup Skov, highlighting the complex relationships between the concepts of succession and climax. The paper finally exemplifies how natural forests can be used as a reference for silviculture, nature conservation and landscape planning.

Key-words: Climax microsuccession, *Fagus sylvatica*, *Fraxinus excelsior*, mosaic cycle, nature-based silviculture, shifting mosaic, steady state

*Biodiversity aspects (dead wood component etc.) related to stand structure*

Bradshaw R.H.W., Lindén M. (1997): RENFORS – Regeneration of natural forest stands for timber production and environmental value EU report contract FAIR1 095 0420

Abstract: The increasing use of "nature-based" silvicultural techniques has created the need for systems that monitor the biological effects of forest operations on forest stands. Monitoring survival of individual species and recording colonisation of new species is time-consuming, requires specialist knowledge and positive results may not become apparent within normal planning time-frames. Only a few 'indicator' species can be followed in this way, and the choice of life-forms and species is often arbitrarily dependent on local knowledge and bias. By contrast, stand-scale measurements of forest habitat are rapid and easily performed by forest managers. Forest habitat is directly affected by forestry operations, and current evidence suggests that there is often a link between suitable habitat and 'base-line' biodiversity.

A system for monitoring diversity and 'naturalness' of stand structure is developed for use in European mixed forests. The system was designed to be particularly sensitive to silvicultural measures employed during regeneration. Features characteristic of near-natural forest stands are rewarded by the system. Woody-species diversity is highly valued, together with all forms of structural diversity at canopy-, trunk- and ground-level. Dead wood is also highly valued. Results from Sweden, Denmark, Great Britain and Italy in the form of an index give highest values from stands that are richest in species characteristic of pristine forest. Species-poor, monotonous plantations have low indices. The system indicates how silvicultural management can be used to improve forest biodiversity.

Key-words: Silviculture, monitoring, regeneration, dead wood

Christensen M., Emborg J. (1996): Biodiversity in natural versus managed forests in Denmark. *Forest Ecology and Management* 85, 47-51.

Abstract: During recent millennia the biodiversity patterns of the Danish forests have changed. Many of the rare or threatened species in Denmark are related to habitats characteristic of natural forest ecosystems. By comparing the structure and dynamics of natural and managed forests the following key elements related to biodiversity were identified: woody debris, forest heterogeneity, (successional) continuity and water. To incorporate these elements into modern forest management, a change in attitude and practice is needed. Education and training will be an important part of this move towards sustainability.

Key-words: mosaic-cycle, sustainability, temperate forest dynamics

*Comparisons between natural forest / managed forest applications for silviculture*

Møller P.F. (1997): Biodiversity in Danish natural forests. A comparison between unmanaged and managed forests in East Denmark (in Danish with English summary). Danmarks Geologiske Undersøgelse Rapport 1997/41, 209pp.

**Abstract:** A comparative study of forest history, structure and biodiversity of 17 sites with deciduous forest in East Denmark (10 unmanaged stands, 4 stands with selective felling and 3 stands with traditional silvicultural management). The site size varied from 1,7 to 19,3 ha with a total of 117 ha. The purpose was to study differences between unmanaged natural forest (non-intervention, also Semi-natural ancient woodland) and managed natural or cultural forest (planted or sown woodland).

The stands are mainly dominated by 100 to 300 years old *Fagus sylvatica*, by *Fraxinus excelsior* and *Alnus glutinosa* or by a mixed forest of these species and *Quercus robur*. *Tilia cordata* is present on one site and *Ulmus laevis* on another. *Fagus*, *Quercus* and the introduced species *Acer pseudoplatanus* are present on all sites.

The unmanaged stands have a different forest history, some have been slightly managed or more than 100 years. A few have up to 40-80 years of non-intervention status. None of the forests was without influence from artificial drainage.

Five stands of unmanaged natural forest were directly compared with 5 silviculturally managed stands of, as far as possible, equal size and site conditions (soil, topography, exposition, dominant tree species etc.). The site investigations included forest history, soil conditions, stand structure, basal area, volume, amount of dead wood, water conditions etc. The species investigations included vascular plants, bryophytes, red-listed species of fungi, epixylic lichens on *Fagus*, saproxylic click beetles, crane flies, oribatid mites, gastropods, birds and bats.

The investigation found that the structural diversity (habitat diversity) appears to be much higher in the unmanaged forests. And the number of species in general was found to be greater in the unmanaged forest stands than in the managed. Several species was found only in the unmanaged stands.

Densities of birds in the managed stands were between 1/4 and 1/3 of the density found in the unmanaged stands.

During the investigation of the sites - in total less than 0,003 % of Denmark's area - 20 % of the Danish vascular plant species, 22% of the bryophytes, 63% of land living gastropods, 30-40% of the oribatid mites, 30% of the crane flies, 21% of the breeding birds and 50% of the bat species were recorded.

The study states that continuity in forest ecosystems is of high importance and that silvicultural management in general, although specific species are benefitted, has a negative influence on biodiversity at stand level due primarily to:

lack of huge, old trees, lack of dead wood, esp. of large dimensions, decreased water level and low humidity due to extensive drainage, heavily disturbed soils, monotonisation - predominance of even aged monocultures, lack of continuity.

**Key-words:** Forest biodiversity, natural forest, ancient woodland, unmanaged forest, forest continuity, forest history, dead wood, saproxylic species



*Methods, systems (sampling plot development) for gathering information on natural forests (forest reserves)*

Bradshaw R.H.W. (1988): Spatially-precise studies of forest dynamics In: Vegetation History. Eds.: B. Huntley & T. Webb III. Kluwer Academic Publishers, 725-751.

Abstract: Review of the potential and limitations of local "small hollow" pollen analysis in the reconstruction of local forest dynamics. Case studies from Denmark, U.S.A., Sweden and Ireland.

Key-words: Forest history, pollen analysis

Ministry of The Environment (1994): Strategy for Natural Forests and Other Forest Types of High Conservation Value in Denmark (in English and Danish) The National Forest and Nature Agency, 48 pp.

Abstract: In 1992 an official strategy for protection of natural forests and other forest types with high conservation values in Denmark was released by the Danish Ministry of the Environment. The goal of the strategy was before year 2000 to increase the area of "untouched forest" (non-intervention forest reserves) to at least 5000 hectares and to protect at least 4000 hectares of coppice woods, grazing woods and forests with a specific nature-close management system.

According to the definition used in Denmark, natural forest means woodland with trees descending from the naturally immigrated species and provenances on the site.

The paper describes the background, terminology, purposes, goals and management principles of the strategy.

Key-words: Forest biodiversity, natural forest, ancient woodland, unmanaged forest, forest history, coppice forest, nature protection

Nielsen F., Brøgger-Jensen S., Larsen J.B., Møller P.F. (1995): Basisprogramme for natural forest research in Denmark (Basisprogram for naturskovsforskningen) Projektrapport; Kgl. Veterinær- og Landbohøjskole, 106 pp.

Abstract: The report describes background and status for and aims of research in natural forests and gives recommendations about methodology and choice of sites for natural forest research in the future in Denmark.

Key-words: Natural woodland, natural forest, ancient woodland, nature conservation, research, monitoring