



Forest Programme 2011

Joint action for the protection and
the benefit of rural landscapes

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Preface



Dear readers,

The year 2011 – the International Year of Forests – is an excellent occasion for presenting the new Forest Programme of Brandenburg to you. Due to current developments, the precursory programme developed in 2004 had to be revised and reoriented. We have to react to our changing environment and to the new behavioural patterns evolving from societal developments. In order to enable future generations to experience the forest in all its diversity and beauty and to maintain the economic utilization for its owners, we need to focus our actions.

Climate change is the main challenge for long-lived forest ecosystems and requires considerable adaptation efforts. Our newly developed understanding of the systemic interactions of soil, water, biological diversity, tree species selection and forest management techniques also calls for adjustments. The new Forest Programme of Brandenburg accommodates these challenges and paves the way for future forest policy in Brandenburg. The programme was developed in dialogue with different stakeholder groups. Representatives of the forest owners,

the wood industry, forest science and environmental organisations all contributed their perspectives. The opinions of athletes, hunters and angler were considered in equal measure to those of political parties and municipal bodies. However, the Forest Programme is not a compromise between the often opposing views. As the ministry responsible for the protection of our rural infrastructure, we have balanced all opinions and formulated the programmatic objectives. Particular consideration is given to the state forest due to its relevance according to § 26 of the Brandenburg Forest Law (LWaldG).

When reading our new Forest Programme, you will understand the challenges we have to face in Brandenburg. We can only secure the future of our forests by strengthening the joint action of agriculture, forestry, nature conservation and the wood industry. In this process, our forestry professionals want to play their part.

A handwritten signature in black ink that reads "Jörn Voß". The signature is fluid and cursive, with a long horizontal stroke at the end.

Minister of Infrastructure and
Agriculture, Land Brandenburg



COMMITTED TO
CLIMATE
CHANGE
MITIGATION FOR
SEVERAL YEARS

Natural management of vital forests – a new image of forestry in Brandenburg

Since the 1992 Rio de Janeiro Environmental Conference our society is increasingly dealing with the question of how economic success, social cohesion and the preservation of natural resources can be **balanced**. In this context, **wood** plays a crucial role for the preservation of non-renewable resources and the protection of water, air, soil and climate. As **sinks for CO₂**, forests are of paramount importance to climate protection. This protective function is the key to the future – and was essential in developing the new Forest Programme of Brandenburg.

However, the **economic value** of our forest is of similar importance to climate, environmental and nature protection. In the spirit of sustainability, economic activities in and around forests can contribute to and provide a financial basis for forest protection. **Economic activities that integrate natural processes** and responsible actions for the preservation of our natural resources are therefore the main pillars on which the new Forest Programme of Brandenburg is founded.



EMPLOYMENT IN RURAL AREAS

The State of Brandenburg is considerably shaped by its forests, which cover approximately 1.1 million hectares or 37 per cent of the total territory. 100 000 forest owners maintain their forests in a vital and stable condition. As **proprietaries**, they ensure the preservation of our common natural heritage. We are jointly responsible for creating adequate framework conditions for the continuing and economically viable provision of all **forest functions**.

As they are producing our most important renewable resource, forests offer a large potential for **employment** in the forestry sector and the timber industry and thus contribute to the **strengthening of rural areas**. The State Forest Administration and the Landesbetrieb Forst Brandenburg support employment in rural areas

through qualified staff. This requires a powerful long-term personnel policy as well as effective support for other forestry enterprises with respect to human resources development.

Forest management considers all forest functions and is based on a holistic understanding of **forest ecosystems**. Apart from economic interests, forestry and the forest and timber industry also contribute to the lasting preservation of our common **livelihood**, play a part in the protection of nature and landscapes, and benefit the society. To enhance this understanding amongst all citizens, tourist services ought to be employed more intensively.



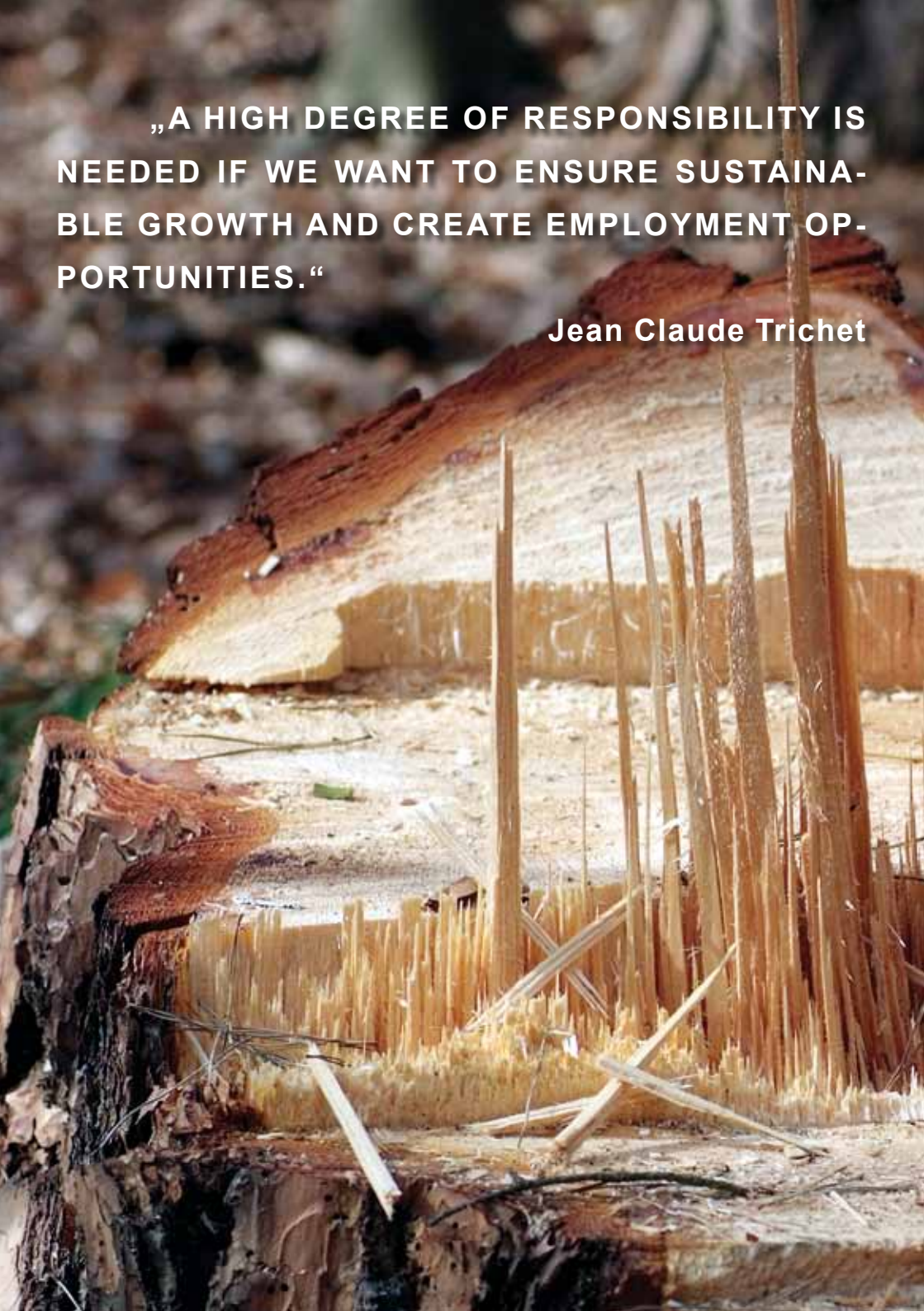
Forest stands characterised by large inherent stability and site-adapted diversity of species and structures can adapt more easily to climatic changes. To increase forest stability, on-going efforts must hence be made to convert stands that are not site-adapted. The adaptation of our **hunting regime** is essential for this process. Focus areas for **forest conversion** are identified based on

forest development planning and in consideration of potential risks such as the fire hazard.

Research results concerning the effects of climate change with respect to changes of forest ecosystems are considered during planning and management.

**„A HIGH DEGREE OF RESPONSIBILITY IS
NEEDED IF WE WANT TO ENSURE SUSTAINA-
BLE GROWTH AND CREATE EMPLOYMENT OP-
PORTUNITIES.“**

Jean Claude Trichet





Our forests are an economic resource

1 100 000 forest owners

„In the mind of the general public forest owners do not exist. The forest is simply there; the question to whom it belongs does not arise.“¹

This statement by Prof. Michael Suda reflects a view that is shared by many people in Brandenburg. They consider forests to be common property, because a large proportion of forest land can be accessed without noteworthy restrictions. This is where they err: the forests of Brandenburg belong to approximately **100 000 forest owners**. The State of Brandenburg is one of them. Hence, only a quarter of the forest actually belongs to all citizens of Brandenburg.

The group of forest owners is very heterogeneous: property sizes range from very small strips of land to several thousand hectares. Some owners consider their forest property a **hobby**, a place where they harvest wood for their own fireplace. **Others earn a living from their forest**. These different objectives create diversity.

It's
important
to us

Property entails freedom and obligations

Within the legal framework, each owner defines his own objectives and the strategy to achieve them. Similar to the right of disposal, this right is guaranteed by the Constitution of Brandenburg.

On the other hand, forest owners are confronted with **considerable public demands**. Their property provides clean water, contributes to landscape aesthetics and preserves our natural resources. As a consequence of the general public access right, owners are faced with certain liabilities and additional societal demands. Forest owners have to accept further restrictions in the context of social responsibility, e.g., in nesting or water protection zones. The legislative authorities have formulated special obligations and sale restrictions for the state forest in consideration of its role model function.



¹ Suda, M., "Wald – Objekt der Begierde", AFZ – der Wald, 17/2003, S. 879 – 881



Since the political events of 1989, the ownership structure in Brandenburg has stabilised. Forest owners retrieved or newly acquired the right of disposal for their property. They decided to either follow an **independent management scheme** or join a **forest enterprise association**. Furthermore, other associations represent the interests of forest owners with the parliament and the authorities.

100 000 forest owners – millions of demands

Whether their forest is their livelihood or their hobby, forest owners are confronted with a variety of social demands. While the general public desires unlimited access for horseback riding, biking, running or hiking, the economy and nature conservation sectors have entirely different objectives. In addition, forests are faced with considerable public demands: they are supposed to provide clean water and air and preserve natural resources while at the same time being aesthetically appealing.

Good Practice

Interests need to be pooled

The different stakeholder groups actively shape the political framework conditions and are involved as early as possible in all coordination and transformation processes.

The forest property right is linked to the **hunting right**. However, most owners do not have enough forest land to allow for independent game management. In many cases, the hunting right is therefore exercised by **tenants** in collective hunting districts. In Brandenburg, game management plays a key role in the establishment of vital mixed forests.



**Let's
accomplish
this
together**

Silvicultural interests must define the hunting regime
Therefore, forest owners must clearly

communicate their objectives to the hunting cooperatives, define these objectives in the tenancy agreements and monitor their implementation.

Forest owners are an important resource for forest preservation. In addition to offering free access to their property to all citizens, they preserve and protect forests through their entrepreneurial actions. For example, the leisurely stroll through the forest that is

Hunters provide services to the forest *On site, forest owners consult with experts about the necessity and type of measures to protect the forest against game damage.*

Hunters rely on their equipment *Rifle, field glasses, backpack, and weatherproof clothing are part of the basic equipment.*

often taken for granted would not necessarily be possible without responsible and caring forest owners.



How lucky is the forest sector – do forests really grow on their own? *Optimally, forests regenerate through natural regeneration. However, this often requires assistance. Following the removal of old trees, more light reaches the forest floor and allows seeds to germinate. Silvicultural tending measures facilitate the natural growth processes. Hunting is one of these measures, because roe and red deer love to feed on buds and young shoots.*

Paragraph 4 of the 2004 Forest Law of Brandenburg states: *"Forest management ... must be sustainable, careful and adequate in accordance with recognized management principles (sustainable forest management)."*

In practice, this **understanding of modern, sustainable forest management** is characterised by the following actions:

- » practicing integrated plant protection,
 - » using site-adapted plants,
 - » favouring regional seed material,
 - » using environmentally friendly machinery,
 - » adapting game densities to the respective forest ecosystem,
 - » preserving habitats,
 - » avoiding soil disturbance wherever possible,
 - » abandoning clear-cutting.
- » restoring the natural site potential,
 - » favouring natural regeneration,
 - » preserving and/or developing mixed layered forests according to the natural forest communities,



We recommend

Setting silvicultural standards

In the state forest, sustainable forest management is implemented by means of silvicultural principles that should also serve as guidelines for all other property types.

The observance of these principles can be documented through the certification of sustainable forest management. In Brandenburg, approx. 35 per cent of the forest area is assessed using such schemes, mainly by the “Programme for the Endorsement of Forest Certification Schemes” (PEFC) and the “Forest Stewardship Council” (FSC).

We recommend

Integrating quality assurance systems into contracts

Further dissemination of certification schemes promotes the implementation of good practice in forests of all property types.

In 2014, the results of the **first state forest inventory** will give evidence about the development, the structure and the composition of all forest property types. It will provide concrete information on practical forest management in the State of Brandenburg and provide a basis for future agreements with the forest owners.



The forestry and timber sectors offer **many employment opportunities**, including forest management, timber harvest and transport, tree nurseries, road construction, measures of biotope amelioration, timber processing and the skilled trades. In rural areas, these are all important lines of work.

Brandenburg features established forest contractors that are adapted to the specific local and regional conditions. They are major employers outside of the economic and industrial centres.

Cooperative and preferably **long-lasting contractual commitments** are the foundation of a stable collaboration between forest owners and contractors.

From tree to planks – Work for 15 000 people

Roughly three million solid cubic metres of wood are processed in our region per year, with 200 cubic metres securing one job in a rural area. Opportunities range from forest contractors and sawmills to construction enterprises, small artisanal businesses and craftsmen.

Independent testing and decision-making institutions, such as the above-mentioned certification schemes PEFC and FSC, but also the RAL quality label and the German Forest Service Certificate (DFSZ), facilitate the realisation of contracts. They certify both forest owners and forest contractors concerning the compliance with all relevant laws, regulations and standards.



Apart from timber marketing, numerous alternative and **additional income sources** for forest enterprises were established or are currently being developed. Among them are the energetic and material utilisation of wood, the lease of land and the marketing of game.

Good Practice

Developing the energetic use of woody forest residues

As a renewable fuel, wood plays an increasingly important role in the expansion of the renewable energy sector. On the road towards a more sustainable economy, particularly those assortments that cannot be used for superior purposes could serve as fuel.

Timber in Brandenburg: construction – living – heating *Wood can be used to create or facilitate the production of almost everything the human heart desires. There is not a single part of a tree that could not be reasonably used. Moreover, wood cannot be used only once. At the end of its long lifetime, for example, wooden furniture can be used in the fireplace to generate heat.*

We recommend

Developing short rotation coppices

The cultivation of site-adapted tree species in short-rotation coppices can create additional sources of woody material outside of forests. This management type is encouraged by incentive schemes such as the Renewable Energy Law or business models such as contracting.



**We recom-
mend**

**Encouraging the
use of timber as
a high-quality
construction
material**

The use of wood as a construction material or for furniture stores carbon for the entire lifetime of the final product and is thus of particular importance. These long utilisation periods need to be reflected by a higher product price.

**We recom-
mend**

**Using suitable
forest sites for
wind power plants**

The energy strategy of the State of Brandenburg stipulates the doubling of the proportion of electricity generated from wind energy. However, it is increasingly difficult to find areas suitable for wind power plants outside of forests. The state government has therefore

decided to include forest areas without special protective and recreational functions in the search for suitable locations.

**It's
important
to us**

**Cooperative
ventures for
marketing wild
game meat**

The meat of roe deer, red deer and other game is popular and healthy. In order to improve the marketing of game meat, the Landesbetrieb Forst Brandenburg aims for cooperations with different trade chains. This concept can serve as an example for other forest owners. Cooperative ventures should be formed for this purpose.

4 Careful development of timber processing



Future-oriented viable forest management depends on the existence of a viable and efficient timber industry. Regional contractors bridge the gap between forest owners and the timber industry.

Due to globalisation, the timber industry has undergone **structural changes** in the past years. Increased competitive pressure resulted in **consolidation processes**. Wood is becoming scarce. The timber industry, the energy sector and in future also the chemical industry compete for the wood harvested in Brandenburg's forests.

Timber construction offers growth potentials

A wooden roof is not only a nice sight but also contributes to a healthy indoor climate – a beneficial alternative particularly for people with allergies.

It's
important
to us

Combining timber utilisation

Efficiency can be increased by combining several types of wood use. For example, worn paling boards can be chipped and pressed into chipboards. After use, these chipboards can then be transformed into pulp.

Wooden bridge between the old and the new

The new construction of the Forest-Solar-House in Eberswalde links two older redeveloped buildings. As a result of this special design, the mix between timber and glass catches the eye already from afar.



We recommend

Entrepreneurial shaping of the transition to hardwood assortments

Due to the existing age structure of the forest and the progressing forest conversion, the timber industry must prepare for a market shift from softwood to hardwood assortments.

Structured, stable mixed stands permit the continuous supply of manifold timber assortments.

The creation and development of regional markets and the advertisement of

innovative wood products are necessary for increasing the efficiency and preserving resources.

We recommend

Using more local timber in public buildings

A clear preference for local timber in the construction process of public buildings promotes the regional economy. Interdepartmental committees allow for the reconciliation of building regulations with current knowledge about timber construction and their continuous improvement.

5 Knowledge transfer ...

Successful forest management is not easily achieved. Forest management requires expert knowledge, which can only be ensured by a high level of basic and continuing education. Most forest owners, however, have no training as foresters.

Good Practice

Forest owners are trained in the Forest Owner School

The non-governmental organization

Waldbauernschule e. V. enables forest owners to acquire basic knowledge or expand their present knowledge about forest management, the forest and hunting laws, business administration and the fiscal law.

Even though many people still have the image of fairy tale forests in their minds, these forests do not exist in reality. In order to prevent idealised conceptions, it is particularly important to communicate the economic, ecologic and social interrelations to children and young people, thus enabling them to form realistic opinions. For this purpose, the Landesbetrieb Forst Brandenburg has developed and implemented several programs in cooperation with schools, associations and organisations.



We recommend

Expanding and upgrading education for sustainable development

In future, education for sustainable development is supposed to become considerably more important. In cooperation with the Landesbetrieb Forst Brandenburg, the University of Applied Science in Eberswalde therefore offers an education program on "Certified Forest Education".

The State of Brandenburg supports the professional qualification by means of vocational training and continuing education programs. The Landesbetrieb Forst Brandenburg organizes and funds the formation of graduated

... and acquisition



The green classroom Unfortunately, it's not only children who often lack any connection to their natural environment. In the so-called "green classrooms", a responsible attitude towards nature is to be taught. School classes of all age groups, including integration classes, are happy to move their lessons into the forest – there are often long waiting lists.

foresters beyond its own demand, thus also furnishing the demand of Brandenburg's forest contractors.

Good Practice

Eberswalde – our forestry centre of excellence

The central location and the proximity to the University of Applied Science with its forestry program facilitate practical education and knowledge transfer to practical forest managers. Forest owners can thus directly benefit from new knowledge. For this purpose, the service potential currently existing in Eberswalde is to be used for forest management and combined with the research results of other sectors.

Forest environmental monitoring, research and experimental trials are important prerequisites for finding adequate answers to current questions.

We recommend

Observing forest communities

Long-term monitoring sites, forest reserves, natural forest communities and long-term cultivation trials allow for scientific monitoring and analysis of natural development processes and the subsequent derivation of practical recommendations.

On this basis, stable and productive forests can be maintained and professionally managed even under changing site conditions.

6 Offering and marketing experiences

Forests are distinctive elements that shape the landscape of Brandenburg. For many people they are an important part of their homeland. Compared to other German federal states, Brandenburg features relatively large continuous forest areas. Due to their calm, their aesthetics and their climatic effects, forests are a synonym for **recreation and relaxation**. More than half of the forest area consists of individual forest areas between 1 000 and 10 000 hectares in size. As a result of this multitude of attractive forests and the low population density there are **only few highly frequented forest areas**, which are mainly concentrated around Berlin.

Good Practice

The basis: mapping forest functions

Forest areas, which are especially suited for recreational use,

are identified during the mapping of forest functions and managed accordingly. Active visitor management has yielded good results, particularly when considering supra-regional interests. Examples include the numerous long-distance hiking trails and the especially well-developed infrastructure for biking tourism.

We recommend

Finding solutions for equestrians and other users

The fear that equestrian traffic may limit the accessibility for pedestrians and bikers can be counteracted by means of regional solutions which are developed in cooperation with riding centres and forest owners.



The 2004 revision of the Brandenburg Forest Law equates horseback riding on suitable paths to all other means of non-motorised access. Equestrians are thus no longer confined to especially designated bridle paths.



In the state forest, a particular emphasis in management is placed on the recreational forest function.

Tourism is a considerable income factor in rural regions. Consequently, these regions are systematically developed.

We recommend

Tourism as a source of income

In general, forest owners rarely participated in the touristic exploitation of their forests until now. It is thus of particular importance that forest owners form mutually benefi-

Guidance is everything – Brandenburg's forests offer many activities: *For recreational purposes, everybody can walk, bike or ride in the forest. If leashed, dogs can be brought along. The gathering of berries, mushrooms or posies for personal consumption or use is also allowed. Any additional activities are regulated by the forest owner, as long as they do not violate the forest law.*

cial, local partnerships with municipalities and tourism associations for the sustainable development of recreation and tourism.

**“ANY FOOLISH BOY CAN CRUSH A BEE-
TLE, BUT ALL THE PROFESSORS IN THE
WORLD DON’T KNOW HOW TO MAKE ONE.”**

Arthur Schopenhauer





Our forests need protection

Climate change – new challenges for the forest



Global warming will considerably influence the forests of Brandenburg. Apart from **increasing average temperatures**, the **amount of precipitation** and its **distribution throughout the year** will change. Extreme weather events like storms, torrential rains and longer droughts are already influencing the current site and hydrological conditions – with immense consequences for the growth and vitality of trees. **Pests and diseases** can spread more easily in these pre-damaged forests.

Due to the stress factors described above, **certain tree species** will encounter considerably more **difficult conditions** in Brandenburg. In consequence, the distribution ranges of native animal and plant species will shift. To date, nobody can really tell how forest ecosystems will adapt to the impacts of climate change.

Climate change has already arrived *If nothing is undertaken, drought, flooding, storms, insects and fungi will damage and drastically change the forests. The photos show wilted oak seedlings (left), oak processionary moths (centre) and a storm-damaged forest stand (right).*

We recommend

Diversity of species and practices creates options for the future

Forest owners can maintain a wide range of options by maintaining or creating structural species diversity.



We recommend

Regional recommendations for adapting to climate change

The Landesbetrieb Forst Brandenburg currently develops regional recommendations for forest conversion and supports natural forest development by means of active measures such as natural regeneration, soil protection, water management, etc.

Good Practice

Risk management must become part of forest planning

In order to minimise the potential future damage, systematic risk management must now be implemented.

The main aspects of risk management related to forests are:

- » preventive forest fire protection,
- » comprehensive forest health monitoring,
- » inclusion of necessary control measures,
- » ecological game management,
- » comprehensive forest infrastructure,
- » the stabilisation of the landscape water regime by water retention, and
- » peatland protection in forests of all ownership types.

The capturing of carbon is one of the great advantages of forest ecosystems. However, their storage capacity is limited.

We recommend

Supporting CO₂ reduction

The natural CO₂ mitigation potential of forests can only be maintained by sustainable soil-conserving forest management.

8 Preserving biological diversity



Forests are one of the most **diverse landscape elements**. However, numerous interferences in the natural environment complicate the survival of many species, including the fragmentation and reduction of habitats, the high degree of landscape consumption, intensive land use and the scarcity of undisturbed refuges.

The European Commission complains that 83 per cent of the habitats and species and 89 per cent of the ecosystems protected by EU legislation **are not in a favourable condition**.² Forests are important refuges for ani-

Diversity at second glance *Life explodes when a tree is dying. The natural forest reserve Möncheichen located at the northern shore of lake Stechlin is a perfect example for this. A near-natural forest is an ideal habitat for many birds, fungi, insects, microbes and other micro-organisms.*

mals and plants. Forest owners therefore have a special responsibility for the protection and improvement of biological diversity.

² Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions; May 03, 2011; COM(2011) 244 final; "Our life insurance, our natural capital: an EU biodiversity strategy to 2020"

In order to derive recommendations for the future, **typical and rare forest communities** are investigated and **left to develop** in natural forest reserves. Brandenburg features 28 natural forest reserves on almost 800 hectares, representing all naturally occurring forest communities.

It's important to us

Initial inventory of common and rare forest communities

These areas were delineated and subjected to an initial inventory. Comparable follow-up inventories allow to analyse forest development under changing climatic conditions and the impact of forest management on biodiversity.

A near-natural tree species composition is an important prerequisite for establishing the typical regional diversity of species. However, only **14 per cent** of Brandenburg's forests are classified as **"almost natural"** or **"near-natural"**.³ Near-natural forests are characterised by the coexistence of different developmental stages and a multi-layered structure. Currently,

68 per cent of Brandenburg's forests are single-layered forests, but times are changing: During the last 15 years, 70 000 hectares of coniferous forests were already converted into mixed forests. However, this area corresponds to less than 10 per cent of the total extent of coniferous forests. If we do not hasten forest conversion, climate change may get ahead of us.

Let's accomplish this together

Propagating and developing near-natural and multi-layered forest stands

The proportion of near-natural and multi-layered forest stands must be increased in forests of all ownership types. Forest conversion must therefore be consistently continued. In protected areas, measures of preservation and development are to be integrated into forest planning. By means of consultations and suitable incentives, all forest owners should be motivated to adapt their economic objectives to the requirements of nature conservation and to contribute their knowledge to the process of forest conversion.

3 MIL BRANDENBURG / MLUV MECKLENBURG-VORPOMMERN (2010); Biological diversity in the forests of north-eastern Germany; Potsdam and Schwerin, Germany (in German)

Good Practice

The Landesbetrieb Brandenburg practices a near-natural forest management

The near-natural forest management practiced in state forests accounts for the protection of species and biotopes, supplemented by special protective measures. Selected biotopes and species are recorded and specific measures of protection or habitat amelioration are implemented.

This includes raising the proportion of mature stands, creating more open forest areas, facilitating historical management systems as well as preserving and developing ecologically valuable biotopes and structured forest edges. With a density of at least 5 individuals per hectare, the so-called **methuselah trees**, for example, are setting new conservational standards. They comply with the legal requirements for the protection of species and the NATURA 2000 regulations. Even though the demand for firewood is steadily increasing – in the future, forests should contain more dead wood than today. **NATURA 2000 areas** are protected by means of suitable protection and managements measures.

It's important to us

Improving the integration of nature conservation measures

In a joint project, the Landesbetrieb Forst and the Naturschutzbund Deutschland e. V. are looking for measures of nature conservation that can be integrated into forest management and require additional financial support.

We recommend

Joint development of management plans

Forest owners should be involved in this process, in particular in the development of management plans. The consideration of their economic interests must not be ignored. The limitation of forest management due to special protective measures is adequately compensated.



The soil is the most important economic resource for forest owners. Its nutritional and ecological status is crucial for forest productivity. Forest soils influence the quality of the ground water and of standing and flowing water bodies. A well-structured, rooted forest soil with high humus content filters sediments and contaminants from the water.

Wet soils cannot bear heavy machinery *In the Spreewald, forest harvest is a complicated undertaking. Heavy machinery would sink into the moist soft soils and cause extreme damage. Timber is therefore extracted by means of cable cranes.*

Typical threats for Brandenburg's forest soils arising from forest management are:

- » physical, chemical and biological changes of the topsoil following heavy machinery traffic,
- » soil acidification and nutrient depletion due to tree species that are adapted to the site, and
- » erosion or loss of nutrients following the exposure or disturbance of the topsoil.

**Let's
accomplish
this
together**

Preserving soil fertility

It's about time that all forest owners in Brandenburg considered

the legally regulated preservation and, if need be, the restoration of forest soil fertility in the course of operational forest planning and decision-making.

The installation and documentation of a permanent dense access network is a central element of soil protection. This encompasses all skid roads, roads and cables lines required for the transport of the harvested timber from the forest stand to a landing near a truckable forest road. Forest machinery traffic is restricted to skid roads.

**We recom-
mend**

Limiting full-areal machinery traffic on forest soils

Silvicultural measures that require full-areal machinery traffic must be limited to an absolute minimum.

The selection of **suitable tree species** allows for the optimal use of the site potential and the preservation or amelioration of soil quality.

**We recom-
mend**

Hardwood species improve soil quality

Mixed stands rich in deciduous tree

species are more advantageous than pure coniferous stands, because the input of leaf litter results in humus formation and improved soil quality.

Water regime – establishing recognition for ecosystem services



Forests intercept precipitation, reduce rapid surface run-off, store and slowly and continuously release water. **Forest areas thus influence** many processes of the landscape **water cycle**. For example, they prevent soil erosion, water logging and flooding, and provide filtered water to be used by the local water supply sector.

Evaporation, infiltration, percolation and, in consequence, **groundwater recharge** can be **positively influenced** by tree species selection and forest age structure. Studies confirm that infiltration and percolation are higher in deciduous and mixed forests than in pure coniferous forests.

Forests as water reservoirs – preparing for difficult times *Lakes and other small water bodies feed into forested peatlands, which are thus able to store large amounts of water. This water is then released to the surrounding areas during periods with a negative water balance.*

Good Practice

The landscape water regime also benefits from forest conversion

The positive impacts of site-adapted forest conversion on the landscape water cycle are important reasons for the continuation of this process.



Naturally, the vicinity of standing and flowing water bodies is dominated by forests, often characterised by near-natural vegetation. These ecosystems are important habitats for many animals and plants. Forests protect the **biological integrity of water bodies**, which is of major relevance in Brandenburg where flowing water bodies are one of the most important biotope networks.

In order to maintain the quality and amount of drinking water year-round, certain regions are of particular relevance. Legal regulations therefore govern the designation of drinking water protection areas and the management of forests in these reserves.

Natural air-conditioning system *Forested peatlands stabilise the local water regime and positively influence the microclimate. They play a crucial role in the functionality of forest ecosystems. The drainage of these peatlands, e.g., by means of ditches and lowering of the groundwater table, would have considerable negative impacts on the landscape water regime, particularly in light of climate change.*



Good Practice

Financial compensation for management restrictions

If water legislation substantially limits forest management in such areas, forest owners are entitled to compensation.

Let's accomplish this together

Cooperation of forest owners with water and soil associations

The transparent and trusting cooperation of forest owners with the local water and soil associations is important when trying to improve the landscape water regime. Situation analyses can be helpful for the identification of critical issues and the subsequent joint resolution of current disputes, possibly in consultation with the state government.

The German book titled “Principles of Silviculture” states that: “(...) *silviculture must shape forest ecosystems in such a way that their biological characteristics are maintained while making them available for sustainable anthropogenous use.*”⁴

Good Practice

Silvicultural principles of the State Forest Administration

In the state forest, the cultivation and harvest of valuable timber is not only an important economic but also a relevant environmental objective.

The State Forest Administration follows a set of recognised silvicultural principles:

- » management without clear-cutting,
- » conversion of even-aged high forests into layered and mixed forests by means of suitable regeneration and tending techniques in combination with the long-term preservation of the overstory,
- » propagation of deciduous and mixed forests on the basis of the potential natural vegetation,
- » formation and development of highly structured forest edges,
- » integration of nature conservation measures into forest management,
- » making use of natural regeneration,
- » small-scale regeneration techniques (following timber harvest),
- » making use of natural succession for reforestation,
- » game management targeted at establishing adequate densities of hoofed game,
- » regular tending of forest stands,
- » consequent implementation of selective thinning and tending measures,
- » harvesting of individual trees based on defined target diameters,
- » using stand- and soil-conserving machinery and methods (e.g., avoidance of soil disturbance wherever possible),
- » implementation of integrated forest protection (e.g., abandonment of plant protective agents as far as possible), and
- » no fertilisation.

⁴ PETER BURSCHHEL / JÜRGEN HUSS (1997), *Grundriss des Waldbaus*, 2nd edition, Berlin, Germany





Forest conversion – the secret is in the mix *Brandenburg cannot change its relatively dry climate – its forests are therefore particularly threatened by drought and insect damage. These threats can only be reduced by converting coniferous into mixed forests.*

These silvicultural principles are also the basis for consulting private and municipal forest owners and for forestry-related financial support programs.

We recommend

Forest conversion must be hastened

Forest conversion remains the central challenge for all forest owners in Brandenburg. Stocking on 54 per cent of the forest area, pure stands of pine currently still dominate Brandenburg's forests and must be converted to stable mixed or deciduous forests. According to forest development planning, pure forest stands are to be found on less than 50 per cent of the forest area by 2050.

Let's accomplish this together

An additional 500 000 hectares of pure pine stands must therefore be converted during the

next 40 years. Consequently, the average annual conversion area has to be doubled, increasing from currently 5 000 hectares to 10 000 hectares per year. This objective can only be achieved if natural regeneration is used to a much larger extent.

Good Practice

Decree on target forest types

Tree species selection is generally based on the decree on target forest types, which is mandatory for the state forest and for silvicultural measures funded through financial support programs.

Hunting – protection against game damage

Due to the predicted climatic changes, hunting plays a **key role** in the ecological stabilisation of forests. Game management will be crucial to the development of “new” adaptive forests which are able to **buffer the risks of climate change**. These adaptive forests will be characterised by a varying mixture of site-adapted tree species in different developmental and structural stages. The exclusive use of protective measures against game damage will not be sufficient for achieving this objective, if only because of the associated economic costs.

Let's
accomplish
this
together

Hunting contributes to the development of vital forest stands

The hunting regime must be geared towards the development of vital and resilient forest stands and needs to permit the natural regeneration of forests without protective measures. The objectives and the regimentation of game management must be continuously revised depending on the extent of game damage and the condition of the vegetation.



A young pine with a grim future *Due to persistent high game densities, many young trees do not manage to survive the first years without damage. Browsing not only results in low growth rates, but may be a death sentence.*

We recommend

Regulating hunting practices based on regular monitoring

State-wide monitoring instruments are required to document the extent of game damage and the condition of the vegetation in all regions. The first state forest inventory will yield initial data.



From 2015 onward, the Landesbetrieb Forst Brandenburg will abandon all common protective measures against game damage. The successfully regenerated and established forest area will then be an indicator for the success of the hunting regime practised in the state forest.

Fences are not a solution *In the long term, fences are not an economically viable option for any forest owner. The hunting regime must therefore aim to maintain game densities that allow for the establishment of healthy and diverse forests.*

We recommend

Communication between forest owners and hunters

In order to allow for the abandonment of protective measures against game damage in forests of all ownership types, forest owners and hunters must communicate more and enter into a dialogue about their objectives.

This is the only way towards the establishment of adequate game densities in private forests – game densities that allow for the growth of healthy and diverse forests. Brandenburg's State Forest Administration assumes a leading role in this process.

Pests – facing increasing risks



Due to the natural conditions and current tree species composition of Brandenburg's forests, forest fires and insect damages are likely to occur in the future. **Climate change** not only increases the likelihood of **forest fires**, but also reduces the resilience of trees with respect to **insects and pathogenic fungi**. Extensive homogeneous pine forests are particularly susceptible to needle-feeding insects, while the natural enemies of these damaging insects rarely occur in pure pine stands.

Rescue from above *When pathogen spread is fast and massive and when conventional protective measures fail, helicopter operations are often the last resort for the application of plant protective agents in inaccessible or particularly large infected areas.*

The intensity of pathogen outbreaks and the aggressiveness of pathogens are constantly changing: new pathogens occur and **complex diseases** will play a larger role in the future. Many **new species are being introduced** due to globalisation – with impacts that are currently difficult to assess. Introduced pathogens are associated with potentially high risks of economic and ecological forest damage.



Good Practice

Pest control requires experts and cooperation

The constant adaptation and development

of monitoring systems is required to limit measures such as the application of plant protective agents to an absolute minimum. The implementation of these special monitoring tasks relies on experts, local foresters and the cooperation of all administrative and operational levels.

Good Practice

Lower forest authorities are responsible for forest protection measures

The lower forest authorities are responsible for monitoring the occurrence of insects and pathogenic fungi throughout Brandenburg's forests. The generated information is available to all forest owners via the homepage of the Landesbetrieb Forst Brandenburg.

All measures of forest protection should be part of financial support programs.

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