City of Leipzig

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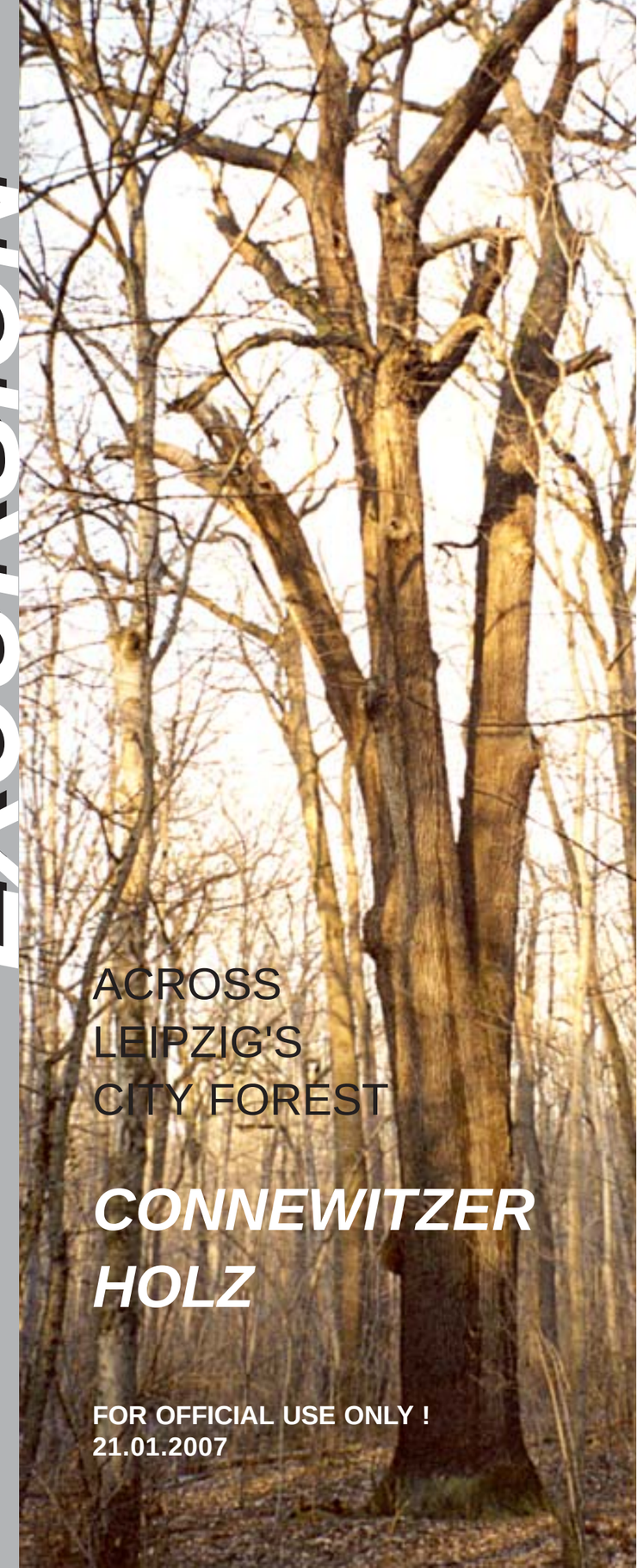
EXCURSION

Wildpark Leipzig



ACROSS
LEIPZIG'S
CITY FOREST

CONNEWITZER HOLZ

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POSITION-No.

CONNEWITZER HOLZ

1 Building of the City Woodland Division (Filter Connewitz)
2 Stand of common beech
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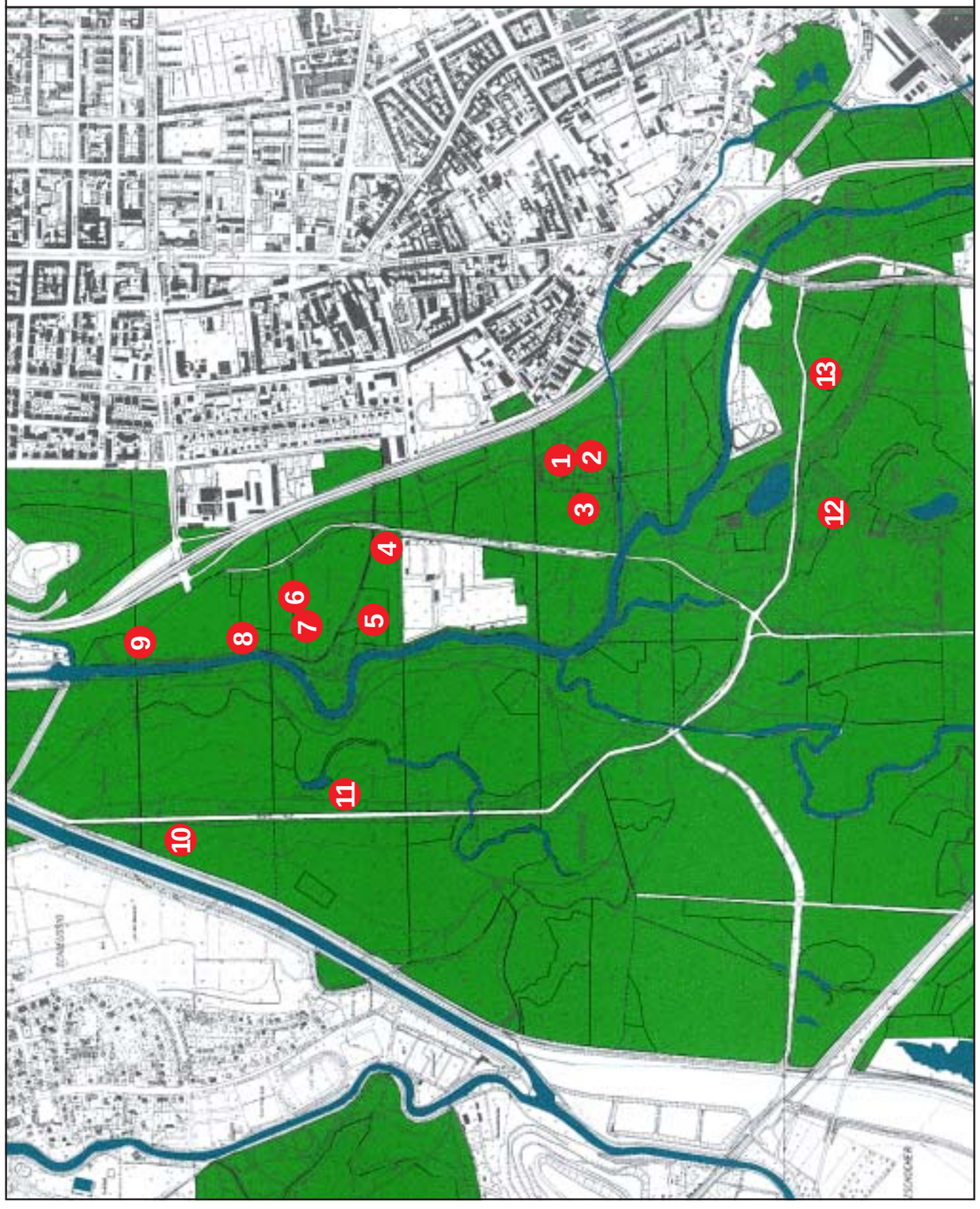
13 Playground "Märchenburg"



When the Allied Troops approached the city at the end of World War II, the enclosures were opened and later removed. In 1972, the City Council decided on re-establishing the Wildpark and in 1979 it was re-opened on a much larger scale.
Today it houses animals that live or used to live in the surroundings of Leipzig. 250 animals of 40 different species are shown. The natural design of enclosures gives animals the chance to maintain their natural patterns of behaviour. Red and fallow deer as well as moufflon (ovis ammon musimon) share the biggest enclosure.
In addition, there are spacious enclosures for roe deer (capreolus capreolus), wild boar (sus scrofa), moose (alces alces) and European Bison (bison bonasus).
The lynxes (felis lynx), common otters (lutra lutra), wild cats (felis silvestris), racoons (procyon lotor), red foxes (volpes volpes) and the European mink

(mustela mutreola) are also kept in open-air enclosures.
Pine and beech martens (Martes martes/ martes foina), polecat (mustela putorius), stoat (mustela erminea), several species of song-birds, different types of owls (strigiformes) and raven (corvus corax) can be seen in aviaries.
Predatory birds (falconiformes) such as red kite (milvus milvus), buzzarts (bueto bueto) and goshawk (accipiter gentilis) are held in bird shelters.
Several aquatic birds share their habitat in the frog pond. Beside the presentation of wild living animals the Wildpark attends to the breeding of endangered species such as the European bison and the European mink to prevent their extinction. The Wildpark is a member of the European Association for the breeding of European Bisons and takes part in the programme for

protective breeding of European mink.
The outside classroom ("Klassenzimmer im Grünen") can be used by school classes, which gives the opportunity for practical and direct experiences during lessons.
The nearby farm of domestic animals, which is operated by a private owner, is a point of attraction especially for children and families.
The young children can ride ponys, while there is also the possibility of going for a coach ride through the Wildpark.
Drinks and meals can be taken at the teahouse, it was built in typical Russian wood block construction or at the Wildpark restaurant which is rather of a rustic style.

LOCATION No. 13

Playground "Märchenburg" (Castle of fairy tales)

The playground, which is situated on the road named "Die Linie" is one of three playgrounds in the Wildpark area. It was built in 1978 and has been very popular since then.

(The fairy tale sculptures were created by the woodcarver Michael Linde.)

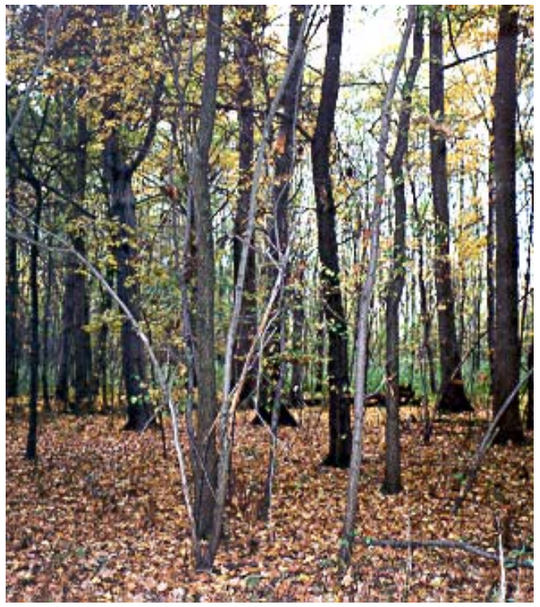
LOCATION No. 10

Dep. 233 a, Connewitz District

Experimental site for floodings

Since the big water regulation activities in the year 1936, the yearly flooding of the Leipzig flood plain stopped. This led to a change in the composition of species and even more to a change in the regeneration of stands.

By damming and releasing water up stream on a relatively small scale, flooding is simulated for short periods of time. Significant disadvantage of this process is the lack of typical flood plain sedimentation since the flooding is carried out with clear water and not with flood water that carrys high loads of sediments. Yet there is a notable shift in the composition of species in regeneration. Especially the amount of acer regeneration decreases due to its flood intolerance.



LOCATION No. 11

Dep. 231 a[3], Connewitz District

The so called „Paußnitzlache“

The city of Leipzig is undertaking extensive efforts to revitalize its running waters. This location is a former arm of a river which was cut off from the main river during the beginning of the 20th century until 1993. In 1993, muddy sediments were thoroughly excavated and the arm was again linked to the main river system.
T oday it is a very valueable biotope, which acts as habitant for species that are nearly extinct in the flood plain forest (especially batrachians). A different composition of species can also be observed in this biodiversity increases location which leads to an overall ecologically richer structure of the Leipzig flood plain forest.

LOCATION No. 12

Leipzig Wildpark (game park)

South of Leipzig, only a few kilometres from the city's hurly burly, the Leipzig Wildpark, which is open during all seasons, stretches out on an area of 42 hectares. The Wildpark includes spacious enclosures which are designed closely to replicate natural living spaces
In 1904, the city of Leipzig received fallow deer (dama dama) as a present from Jacob, the owner of a Leipzig mill. The animal bred well and from 1906 on they were fenced in on the present location of the Wildpark. Very soon wild boar (sus scrofa) and red deer (cervus elaphus) were added and the restaurant was established.

*The Leipzig Woodland Division frequently arranges excursions dealing with different topics to introduce Leipzig's City Forest and the protected landscape "Leipziger Auwald" (Leipzig floodplain forest).
The materials on hand serve to deliver the most important facts and background knowledge.*

Excursion across Leipzig's City forest

CONNEWITZER HOLZ

The excursion in the Connewitzer Holz (southern Auenwald) starts and ends with the buildings of the City Woodlands Division, the so called "Filter Connewitz".
The name "Filter" which relates to the buildings on the one hand and the surrounding ranger district on the other, derives from the fact that in earlier days the area used to be the place of origin of water supply for the village of Connewitz. Apparently at this point the water was filtered through a gravel filter before it was used.
T oday they are situated at the location of the administration buildings of the City Woodlands Division, a technical site belonging to the City Forest Districts Connewitz and Leutzsch and to the Area of Local Recreation, different storage buildings and a modern joiner's workshop belonging to the administrative division of the Parks and Recreation Office. The processing of logs and the sale of wood and timber is also managed here by the Area of Coordination.

We hope you'll relaxing and interesting visit in the "Leipziger Auenwald"

LOCATION No. 1

Buildings of the City Woodlands Division

Possibilities for the utilization of timber shown in examples at the City Woodlands Division
(Dieser Exkursionspunkt kann nur während der Dienstzeit nach Voranmeldung bei der Stadtforstverwaltung besichtigt werden!)

The utilizing of natural raw materials close to their growing location ("regional circles") and the use of regenerative raw materials for heating and construction (reduction of CO_2-emissions) is a direct contribution to environmental protection. Besides, the City of Leipzig sets an example in the use of advanced and environmentally friendly technologies and the utilization of regenerative raw materials.

Production of firewood

Due to the conversion of household heating from solid burning materials (lignite, fuelwood) to gas or oil heating the requirements for fuelwood fell continuously. On the other hand the demand for firewood use in fireplaces rose, on account of the fact that many citizens installed fireplaces in their newly built homes. These fireplaces hardly serve for heating

purposes. Rather, they are a luxury for the embellishment of living space.
Additionally the City of Leipzig runs four campfire sites which firewood is supplied.

Processing of timber wood with the help of a transportable bandsaw

For the convenient use of several types of wood that are hard to sell and also for meeting the requirements of the City Administration in sawn timber products,

a transportable bandsaw was bought. Although the yearly amount of 500 m³ of processed timber is relatively small, it provides the City with sicnificant savings of funds that would otherwise be spent on buying timber products. Main products are materials

for benches and fences as well as other boards and poles. A second advantage is the possibility of producing only small amounts of required materials.

Wood chip heating plant

A woodchip heating plant was installed for the buildings of the City Woodland Division to use the wood that arises from forest tending operations and roadwork as well as residues from the processing of raw timber.

Significant costs that would otherwise be spent on heating fuels can be saved. The plant has a capacity of 150 kWh and a consumption of about 200 m³ of wood chips (100 m³ of solide volume) per year. Hence, all buildings of the City Woodlands Division (except for the "Barn") are supplied with fuel that is produced in a CO_2-neutral way.

LOCATION No. 2

Stand of common beech
in the Filter Connewitz district

The Leipzig floodplain forest is not the natural habitat of the common beech (fagus silvatica). Therefore the species is not able to regenerate in a natural way. Furthermore the quality of the timber is poor due to the white rot wich frequently occurs in the inside of the tree. The species has been planted in the foodplain forest for the last 200 years, in the hope of increasing the harvest of forestal management. Another reason for the planting of experimental stands was the improvement of the landscape.

Beech trees have limited influence on the ecosystems of the floodplain forest, especially if they were planted as monocultures. Due to the high ground water table the trees do not grow cordiform roots, which are typical for common beech, but concentrate the root system directly under the surface. This leads to an increased extraction of nutrients and oxygene in the topsoil layer. Leaf litter does not rot as quickly as in stands of hardwood typical to the floodplain which results in a relatively large layer of organic material. This layer is not representative of typical floodplain environment and stops the growth of typical floodplain geophytes. Another change is the intense shading by the dense beech growns which prevents the regeneration of shade intolerant trees and also leads to the decrease of other thermophile plants and animals.

In the future it is planned to reduce Common Beech stands especially in sites where they compete with precious English Oak and where regeneration sites are needed.

This system of cutting the big oaks, results in their special form which can still be noticed. Up to the height to which the coppice has grown, trees have a fairly straight form without branches. Above, at approximately 10 -15 metres, they have developed a wide crown, which is comparable to those of park trees.
After giving up the coppice with standarts system trees like ash, acer and elm grew from the lower storey into the top canopy where they shadowed parts of the crown which led to the dying off of the big lower branches. Dead branches and branch scars can still be seen as reminders of this process.
If big oaks were not freed from the pressure caused by the competition of shade tolerant and semi-tolerant tree species which shoot up, they would certainly wither and potentelly die in the foreseeable future.
Whithout limited intervention human no natural regeneration would be possible.
Since the margins of the Leipzig floodplain are not covered with forest, rare species of animals, that are dependant on the English oak could not migrate to other areas, with the result that they would certainly vanish also.

The conservation and proper care of English oak stands is therefore necessary if they are to survive.

LOCATION No. 8

Dep. 216 a[5], Connewitz District
Certified common alder
(*alnus glutinosa*) seed production stand

Over the last few decades the common alder species has been badly neglected by silvicultural practice. Hence, in resent times it is increasingly cultivated on sites with suitable conditions.
This species is light demanding, which means that it can only be grown on forest margins and in larger femel gaps.
The planting stock is raised out of seed that has its origin in the Leipzig flood plain forest.

LOCATION No. 9

Dep. 216 a[5], Connewitz District
Example of a femel gap

As mentioned several times before the cultivation of light demanding tree species such as English oak or common alder is only possible if there are areas for regeneration which have a high input of light femd gaps. Therefore it is necessary to create large gaps in the canopy with a diameter of more than 30 metres into the stand and to take out the semi shade-tolerant trees, which start to grow in the gap. These action are important to support the growth of both of the planted species of trees.

Until around 1870: **Coppice with standarts system (MITTELWALDBEWIRTSCHAFTUNG)**

Fig. 1: The lower storey is felled. Only a few trees of seed origin remain, the so called standards.

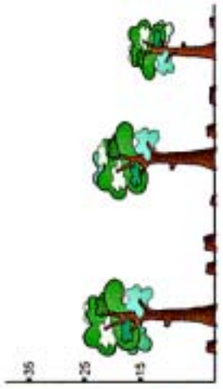


Fig. 2: In this system, strongly sprouting and light demanding species are in favour.

Fig. 3: The coppice shoots grow up to the standards.

Fig. 4: Finally the lower storey is cut. Occasionally standards get felled and replaced by new plantings.

Later: **High seedling forest system (HOCHWALDARTIGE BEWIRTSCHAFTUNG)**

Fig. 5: After a regeneration felling the forest regenerates by seeds and sprouts.

Fig. 6: The regeneration grows up into the crowns of the standards.

Fig. 7: The result is a closed high forest-type stand. The standards which are made up of light demanding species are strongly pressurized. Due to the closed upper canopy only little light can reach the ground. The competition leads to higher tree sizes.

Today: **Selective cutting system (FEMELARTIGE BEWIRTSCHAFTUNG)**

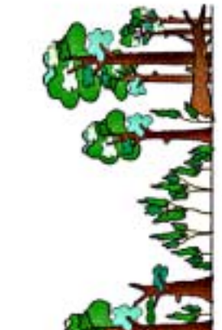


Fig. 8: Regeneration gaps (femel gaps) which measure approximately 30 - 50 metres are cut into the forest. In the rest of the stand the crown cover is opened.

Fig. 9: Light demanding trees are planted into the gap (English oak, Oregon alder (aldus rubra)). The rest of the stand trees typical of the flood plain forest and planted (small-leafed lime (tilia cordata), common beech (fagus silvatica)...).

Fig. 10: The result is a multi-layered forest including a great variety of species.

However, it is not planned to fell each and every beech in an indiscriminate manner. Due to their appearance they are an enrichment of the landscape aesthetics. Numerous holes in beech trees can serve as brooding and breeding spaces for rare species of birds.

LOCATION No. 3

Research point of the Umwelt-forschungszentrum Leipzig-Halle GmbH

(Centre of Environmental Research Leipzig-Halle Ltd.)

Dep. 219 f, District Connewitz

At this locality research into precipitation, (rainfall)water under different circumstances (collection of precipitation under open sky and under the canopy), as well as collection of stem flow is undertaken. Looking at the bore pits a very specific attribute of the floodplain soils can by noticed: Due to the material which was accumulated during the annual flooding a humous topsoil layer can not be generated. Instead, a loamy alluvial layer is sedimented which shows a thickness of 0,5 to 4 metres.

This alluvial layer averages 2 metres of thickness.
Values of pH-levels normally vary between 6 and 7. Nutrient supply is very good. These attributes are the precondition for the growing of high-quality hardwoods, which are common in floodplain forests and which have a high fertility class. Due to high pH-levels a very quick composition of leaf-litter can take place. Therefore only fresh litter remains on the surface of the loamy floodplain soil.
A typical regenerating situation can be observed nearby the research point of the Centre of Environmental Research. Without the normal annual flooding the regeneration consists of different species of maple (*acer*). Additionally there is a high level of regeneration of elm (*ulmus*) and common ash (*fraxinus excelsior*). In places, there are regenerations of small-leafed lime (*tilia cordata*).
The species of English oak (quercus robur) has no chance for natural regeneration without human intervention, which can be seen at this locality. Even though, as in 1999 after a mast year, many oaks germinated, although died after a short period of time due do light deficiency.
Therefore this species must be actively cultivated. To meet the light requirement of the oak trees it is necessary to cut a gap by the method of group selection (wich has to have a diameter of at least 30 to 50 metres).

LOCATION No. 4

Dep. 217 a[5] District Connewitz

Certified oak seed produktion stand (quercus robur)

In the City forest, several stands of trees that are included in the Bundessaatgutgesetz (Federal seed law) were certified as seed production stands. This is a very important economic fact, because seed produced in certified sites is highly sought after an can attract high prices. Hence, the sale of seed is one of the biggest sources of income for the City Woodlands Division. Furthermore the City Woodland Division aims particularly at cultivating plants in the flood plain forest which are of local origin. Therefore a large proportion of the seeds are used for our purposes in regenerating the forest.

LOCATION No. 5

Mystery Forest

North of the sports field in the Connewitzer Holz there is a woodlot stand which is istructure and composition, very different from the rest of the flood plain forest. All of the box elders (acer negundo) which grow in this location seem to grow diagonally towards the centre of the area. The City Woodlands Division is frequently asked for the reason for this phenomenon. There were calls by people who claimed "mystical vibrations".
The Leipzig TV station started some research and engaged a teacher of Feng Shui who confirmed the existence of vibrations.
As an explanation she mentioned the fact that the place used to be an initiation place for adolescents several thousand years ago, and that it still has an aura of positive energy. Since the origin of the box elders (acer negundo) is North America. Some people have formed the belief that the trees grew in the form of a tipi to remind them of their North American home.

Believe it or not ... !

The scientific explanation is very simple. Box elders (acer negundo) is a species of trees that demonstrates a strong phototropism, which means that it grows towards the source of light. The tree grows in a form enahle as many leaves as possible to capture light.

Since the area is surrounded by very high trees which left the least shaded place in the centre of the gap, the elders all grew towards the centre.
The area was forested after the digging out of the Pleiße river, where the sedimentswere spread out on this area. Box elders were chosen because no other trees had been available in the planned economy of the GDR (German Democratic Republic).
At this point there is also a lot that may be said about the establishment and cultivation of foreign tree species.
Especially after the Napoleonic Wars, tree species not typically found in the floodplain forest were increasingly cultivated in the area of the Leipzig flood plain. One aim was to achieve higher yields, the other aim was to manage the landscape and therefore to have an influence on landscape attributes. Often trees were chosen that prefer similar conditions in their home territory to the existing conditions of the Leipzig flood plain forest which means that they are suited but still alien to this site. Although they can cope with climatic, hydrologic and geomorphological factors their integration into existing ecosystems is to a large degree, unsatisfactory. Examples of these species are the red oak (quercus rubra), the pin oak (quercus palustris), the white hickory (carya) and the black walnut (juglans nigra).
Then again other species were cultivated which were not suited to the site. These trees can hardly (or not at all) cope with climatical, hydrological and geomorphological factors and show an unsatisfactory development or have a negative influence on the whole ecosystem. These include trees whose natural range is in Central Europe, as for example the common beech (facus silvatica), the scots pine (pinus silvestris), and the Norway spruce (picea abies).
Under natural circumstances these species would not exist in the Leipzig flood plain forest.

POSITION No. 6

Dep. 217 a^4, Connewitz District

One of the last strong elms (ulmus laevis/ ulmus minor) in the Leipzig city forest

Diameter at breast height:	0,68 m
height:	23 m
Age (estimated):	130 years
Comact wood mass:	4,2 m³

In 1921, the dying of elms was first noticed. In the sixties, the situation worsened considerably and led to the disappearance of almost all stands of strong and valuable elm trees. While in 1958, the percentage of elm trees was 13 %, and today is 0 %. In 1998, action was taken to register all remaining elms with a diameter at breast height of more than 30 cm.
Only 315 trees were counted !!!
One fact that can be noted is that although the elm has disappeared out of the top canopy the species is still widely spread due to regeneration. However, most of the regeneration dies at the young polewood stage.
This early age death of the tres is potentially due to the changes in light, soil moisture and soil types.

LOCATION No. 7

Dep. 217 a^4, Connewitz District

Strong English oak (quercus robur) from the times of coppice with standards forestry in the Leipzig flood plain forest

Diameter at breast heigh:	1,82 m
height:	24 m
Age (estimated):	500 years
Compakt wood mass:	31 m³

The oak which can be seen at this location is one of the biggest English oaks in the Leipzig City Forest. The biggest and probably oldest example is situated in the "Rosental" (northern Auenwald). Its diameter at breast height is 2,07 metres, its height 31 metres, its age is around 500 years and the total wood mass adds up to approximately 52 cubic metres.
This species of the English oak ais an examples of a tree that carry a lot of dead wood, and one of the ecologically most valuable elements of the Leipzig floodplain forest. They are extremely important for several species of birds and beetles that live in dead branches. The City Woodlands Department therefore aims at not only securing the stands of English oak but also at increasing their proportion. At present the proportion of English oak is around 20 %. While the proportion of oak during the middle of the 19th century was around 60 %, today the aims is for 40 %.
Until the middle of the 19th century, the Leipzig flood plain forest consisted of coppice with standarts system (Mittelwaldbewirschaftung), which means that a few overhead trees (oaks) were left which could later be used as construction material.
The lower storey was made up of root and coppice shoots of aspen (populus tremula), hornbeam (carpinus betulus), lime tree (tilia) and elm (ulmus). For the production of fuelwood this lower storey was cut every 15 to 20 years.

(seen also diagram "Mittelwaldbewirtschaftung" ...)