size.

Presently the oak quota in Leipziger Auenwald amounts to 20 %. The aim is that in a period of time a quota of 40% will be reached. Up to the middle of the last century the oak quota was as high as 60%. During this period of time the so-called “coppice with

standards system” was applied to the running of the Leipziger Auenwald.
This means, quite a large proportion of oak trees were cut down to be used as building timber. The so-called “lower wood” consisted of root and coppice shoots of Aspen, Hornbeam, Basswood and Elm. These were cut down every 15-20 years to gain firewood. Thereby the strong oak developed its typical form, which is still distinguishable today. That means up to the height of the “lower wood” the stem has a straight form with almost no branches. The trees grow to approximately 10 – 15m, and have developed a wide canopy, which is comparable to park trees.

The task of the “coppice with standards system” led to an increase of the “lower storey” trees like Ash, Maple and Elm which partially darkened the crowns, resulting in the withering of the lower strong branches. This can be seen today on the remains of branch scars and dead branches.

(See diagram Mittelwald page 5)

If the strong oak is not freed from the competitive pressure of the fast growing semi and shady species of tree, it will perish in a foreseeable future, and thus requires human assistance to regenerate.
As the Leipziger Flussauen (Leipzig’s floodplains) are not covered by forest, many of the rare species of animals currently inhabiting the forest, whose very existence is dependent on the oak, would be unable to migrate, and consequently they too could vanish.
As a result of this, the commitment to preserve and protect the population of the common oak tree species in the Leipziger Auenwald is of utmost importance.

EXCURSION POINT 5

Burgauenbach

In July 1996, the Naturschutzbund Deutschland (nature conservation association of Germany) and the Landesverband Sachsen e.V.(a registered National Association of the Federal State of Sachsen) empowered the Beller Consult GmbH with the drawing up of permission references. With this approval, some areas of the northwest Leipziger Aue were allowed to be drenched.Within the scope of the state prioritised project of Nature conservation, this project was funded by the Sächsischen Staatsministerium für Umwelt und Landwirtschaft(Saxony State’s ministry for Environment and Agriculture) The aim of this project was the restoration of a trench running from the Elsterbecken through the Leutzscher Holz and the Burgaue up to the former loam pit at the so-called Waldspitze. (a forest area in form of an angle that has risen out of the landscape).

Due to a guaranteed water flow over the whole year, it is possible to restore the typical living conditions of animals and plants in the floodplain. The recultivated Burgauenbach covers a total distance of 5375 metres. Between December 1997 and March 1999, work was carried out by the Betrieb for Beschäftigungsförderung (job creation scheme) to build the ditch and create other water leaks.During this phase of construction 2 water pipes, 2 water and sewage pipes, 1 power supply line, 3 gas pipes, 2 rail lines, the Gustav-Esche –Strasse and several forest/ bridal paths as well as farm land were crossed. The underground construction to the rail route Leipzig-Leutzsch had an overall length of 62 metres, whereby a firm from the City of Zwickau applied a controlled pipe driving micro tunnel method. On the 22nd March 1999, the Burgenauenbach was opened to commemorate the “Tag des Wassers”.
An extension of this project to connect the regions in the western part of Pfingstanger and the Hänicher Holz is planned for phase 2.

EXCURSION POINT 6

Black cherry (prunus padus)

The black cherry is a small tree with a maximum height of around 15m. It is widely spread throughout Europe, Asia Minor, North Asia up to Korea and Japan. In the Leipziger Flussauen the black cherry can be found both in humid areas (Iris pseudacorus–Hartholzaue) and wet areas (Bird cherry-Alder -Ash). The black cherry has been grossly neglected and in the forest stand sometimes even reduced on purpose. This has occurred mainly due to the measures taken by the forest management in the Hochwaldbetrieb (high seedling forest operations), resulting in the reduction of bird cherry trees in the

Leipzig Flussauen.

At the beginning of the 90s, Abt. Stadtforsten der Stadt Leipzig (the forest department of the City of Leipzig) harvested the remains of the black cherry and its new generation in order to transplant them to suitable sites. Through this measure the quota of the black cherry will be raised and with it a lasting and certain increase of the Biodiversity in the Auenwald will be achieved. The black cherry should not be confused with the so-called late thriving bird cherry, which was brought to middle Europe from North America. This has spread incredibly fast within the forest and has led to an endangering of the indigenous ecosystem. The building up of a resistance to this tree species is of importance. So far the late flowering bird cherry has appeared sporadically in the forest.

EXCURSION POINT 7

NSG Burgaue (nature reserve area)

The NSG lies between Böhlitz-Ehrenberg and Lützschena and covers an area of 270 hectares.
It is within the territory of the Leipziger Auenwald . A bigger part of the area is used for agriculture and forestry purposes.

The region has also a huge number of visitors seeking a recreational resort. The occurrence of an Oak, Ash and Elm floodplain type of forest is characteristic for

this area and to a large extent complies with the natural and almost natural forest stand. According to several analyses, the forest has revealed an enormous variety of different species of Flora and Fauna,(Plants and animals) despite being so near to the city. However human activity has contributed to the decline of some species. For these reason this area has become a forest reserve. The forestry management’s main task by the nature preservation should be the securing of the existence of important species and where necessary raising its quota. (Oak problematic)

EXCURSION POINT 8

Alte Flutrinne (Lange Wiese) (a bayou at the Lange meadows)

This depression in the “Burgaue” area which runs from east to west served as a run off ditch during floods until the 1930s, when a river regulation measure was established and was later mainly planted after the embankment of the Luppe River.

Besides the typical floodplain forest tree species, the Red Beech, Birch and Red Oak were used by the planting of the Alte Flutrinne. An area of approximately 1 hectare has been left open in the western part of the Burgaue and is cultivated as the Auenwiese (floodplain Meadows).

EXCURSION POINT 9

Wild Apples (Dept. 325)

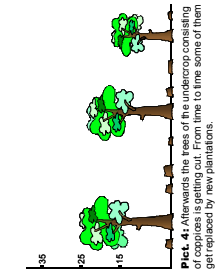
The Wild Apple Tree (Malus sylvestris) is in the common parlance also known as Holzapfel (Wood Apple) and was, although not frequently grown a typical part of the Leipziger Flussauen. It was neglected somewhat intentionally by the forest management in the high seedling forest operations. Due to these measures, the Wild Apple has all but ceased to exist in the Leipziger Auenwald. Occasionally one can still find the “wild” Apples which have grown up from the remains of apples left by visitors to the forest.

Die Abt. Stadtforsten der Stadt Leipzig has undertaken a study of all wild apple like trees in the Leipziger Stadtwald. In doing so, the considered specimen’s “purity” will be analysed by the University of Leipzig. As a result, a total of 83 wild apple like trees have been found in the city forest region of the Leipziger Flussauen. As a matter of fact, in the beginning of the 90s, “pure” Wild Apples were found during the analysis of some trees. These are regularly harvested and young trees are developed from its seeds. This takes place in the botanical gardens of the University of Leipzig. The young trees will later be planted at suitable positions in the Leipziger Auenwald. The planting of these trees for the Excursion Point 9 took place in December 1996. The preservation of the Wild Apple is not only a valuable contribution to the conservation of Genre sources, but also of the lasting and certain securing of the Biodiversity in the Leipziger Flussauen.

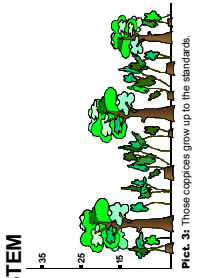
EXCURSION POINT 10

Strong Elm

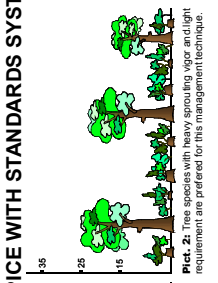
The Fungi Ophiostoma ulmi, which first made its appearance in 1919 in
Holland and two years later in Leipzig led to the dying of elms (also called Dutch elm disease) in the 1960s at a considerably rate. The reason for this sudden,



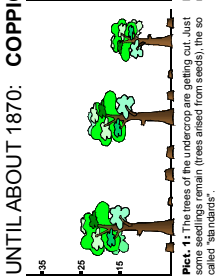
Pict. 4: Afterwards the trees of the undercrop consisting of coppices is getting cut. From time to time some of them get replaced by new plantations.



Pict. 3: Those coppices grow up to the standards.

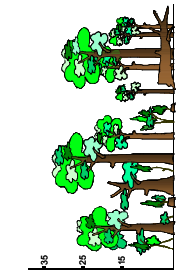


Pict. 2: Tree species with heavy sprouting vigor and light requirement are perfered for this management technique.

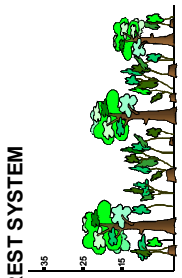


Pict. 1: The trees of the undercrop are getting cut. Just some seedlings remain (trees arised from seeds), the so called “standards”.

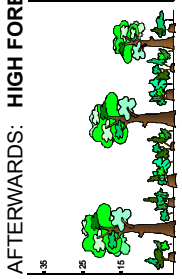
UNTIL ABOUT 1870: **COPPICE WITH STANDARDS SYSTEM**



Pict. 7: The result is a closed high forest-like stand. The standards consist of long-term mature trees, which are getting into bad trouble. Because of the long-time closed upper crop there’s very few light passage. The competon conditions lead to higher trees.

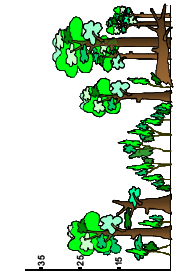


Pict. 6: The regeneration grows up into the canopy.

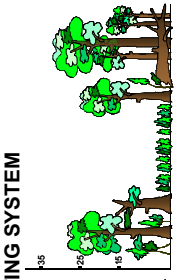


Pict. 5: After the last cutting the forest is regenerating by falling seeds and coppices.

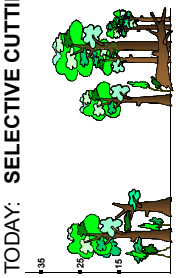
AFTERWARDS: **HIGH FOREST SYSTEM**



Pict. 10: The result is a multilayered forest with an abundance of species.



Pict. 9: Light demanding trees (common oak, red alder) are planted on the selective cutting holes. The other stand gets founded by food plain forest-typical semitolde trees (small-leaved lime, hornbeam).



Pict. 8: Regeneration cones (selective cutting holes with a diameter of 30 to 50 Meters) are being created. The other stand is getting thinned.

TODAY: **SELECTIVE CUTTING SYSTEM**

ecology, botanic, zoology and forest science. This team should examine the less analysed climatic process occurring between the borderline layer of the canopy/ atmosphere as well as the notoxious material effect on an almost natural forest near the city. Moreover, the research concentrates on the biodiversity analysis. Basical knowledge for future protective and utilisation strategies can be derived from these research results. Besides, there is a possibility for a better assessment of the Auenwald`s importance towards the city's climate and ecology.

Technical data:

Tower height:	40m
Jib length	45m
Length of the rail track	120m
Area forest accessed	1.6 hectares

EXCURSION POINT 3

District "Altes Forsthaus"

This is one of the 14 sports fields in the Leipziger Stadtwald and, inspite of (or perhaps because of) its simple furnishings, is a popular recreation area for families with children, crèche and nurseries.

The district owes its name to an old forester's house, which was established in 1470 to accommodate the first district (founded in 1463) forestry superintendents.

In the year 1886, this structure was demolished after a new district forester's house in the Gustav – Esche – Strasse was built two years previously.

EXCURSION POINT 4

Fermel gap Dept. 332 and 327
Strong oak

The tree species common oak and in particular the deadwood rich strong oak are some of the most ecologically valuable elements of Leipziger Auenwald. They have a specific importance for many bird and beetle species, whereby the later are wood inhabitants. The city forest management not only aims to sustain the oak population but also gradually to increase its

extreme and rapid dying is certainly complicated but is connected with the appearance of the new aggressive germ Ophiostoma novo ulmi. This has led to a fall in the quota of the Elm species from the top canopy of the Leipziger Auenwald. While in 1958, the percentage of elm trees was 13 %, today it is has dropped to around 0%. In 1998, 315 Strong Elm trees with a diameter at chest height of more than 30cm were found in Leipzig's city forest in the version of the Leipziger Auenwald. One year later a further analysis was undertaken to count the number of strong elm trees with a diameter at chest height of more than 25cms in the Landeswald (states forest). Only 111 such trees were found in the region of the Leipziger Auenwald.

However in the zone of brushwood the Elm species is still in existence. This tree species is thereby not yet lost for the ecosystem and the potential for an increase of the Elm quota in the top canopy remains possible. Even in the case of a decrease in the dying of Elm trees, this specie will continue to exist.

The Leipzig Stadtwald`s Strong Elm population consists mainly of the Field Elm (ulmus minor) and the Flatter Elm, whereby the later due to its stronger resistance against the Dutch elm disease forms up the largest part of the existing Strong Elm. The Wych Elm appears also seems to be an emerging montane specie in the southern part of the forest

As a consequence of this a number of cross - bred trees have been found between the Wych Elm and Field Elm. This new bred also possesses a strong resistance against the Dutch elm disease.

EXCURSION POINT 11

Femellinden (Lime trees growing on gaps)

This type of lime tree owes its name to a natural forest management, the so-called Femelhieb. Narrow stripes or small holes will be cut in the existing forest stand. The seeds from neighbouring trees will fall into these free places and after a short time a new forest stand will grow.

The Abt. Stadtforsten runs the Leipziger Flussauen in a similar way. The common Oak can only be regenerated through the artificial planting of trees in empty spaces and this is due to a lack of seeds from the surrounding trees. It will only be possible in a few decades time to have a natural common Oak regeneration if enough Oak has been regenerated and the stand increased.

EXCURSION POINT 12

Strong Bird Cherry (prunus avium)
(Liebesinsel / Love island)

The tree specie spectrum in the floodplain forest has been enriched through the Bird - Cherry (prunus avium) together with other wildfruit species like the Wild Apple or the Grape Cherry (prunus padus). Particularly to be admired is the cherry blossom in spring. The biggest Bird Cherry is also found here. It is 26m and has a diameter of 93(!) cm at chest height.

EXCURSION POINT 13

Strong Field Maple (acer campestre)
(Möckernischer Winkel)

This tree species is better known in the form of a hedge or bush and is also found in the margins of the deciduous forest.

It is commonly found in the Auenwald as a large tree, which grows up to the 2nd lower storey. This specimen shows the frequent spiral grain of a Field Maple and it has a considerable height of 19m and a diameter of 84 cm at chest height.

EXCURSION POINT 14

Swamp Oak (Quercus palustris) and Luppe-Altarm (a river)

The Swamp Oak is naturally and widely spread in the north-eastern and north central regions of the USA. The Swamp Oak was brought in the 18. Century to Europe and has been used ever since as a street and park tree.
Very old specimens of the Swamp Oak tree are found along the Alte Luppe River which is situated in the Burgaue region of the Leipziger Auenwald.

At this point it is time to say a few words about the occurrence of foreign tree species and tree species not suitable to the site.
Especially after the Napoleonic Wars, tree species which were not a typical feature of the Leipziger Auenwald, were planted. 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 to the existing conditions of the Leipzig Auenwald, which means that they are suitable but still alien to this site. Although they can cope with the climatic, soil and

Excursion Across Leipzig's City Forest

BURGAUE

The forest area "Burgaue" is found in the northwestern part of Leipzig and is suitable for going on long distance hikes.
There is for instance a possibility to hike across the Landeswald (State Forest) and further continue in the western part of the federal state of Sachsen Anhalt (Saxony Anhalt). This area still belongs to the Flussaue (flood plain) Rivers i.e. Luppe and Elster.

To go hiking down south, the Leipzig wood division recommends taking a route through the Leuztscher Holz (a city forest area), along the Elsterbecken, (Elsterbasin) across the Clara Zetkin Park and Palmgarten on the way to the Connewitzer Holz (a city forest area), then along the Heuweg (a path) through the Rosental (a city forest area) up to the City Centre.

Origin of the name: The Burgaue was purchased from the Knight "Porzigk in 1367, and was the first named forest acquired by Stadt Leipzig (City of Leipzig). The

name "Burgaue" most probably originates from this epoch. ("Bürgaue")
The Leipzig Woods Division has some information to a few chosen excursion points on stock for every visitor, where you can go on your own.

We wish you a relaxing and interesting visit in the Leipziger Auenwald (Leipzig's floodplain forest).

EXCURSION POINT 1

Unterstellpilz (Mushroom shaped shelter)
At the start of the 1 kilometre hike

They are altogether 11 shelters of this type in the Leipziger Stadtwald (Leipzig's City forest). A large number of them were built in the 1980`s. New shelters were built in the summer of 1996 at Friesenstrasse and autumn 1997 in the Rosental where barbecue and camp fire facilities can also be found.

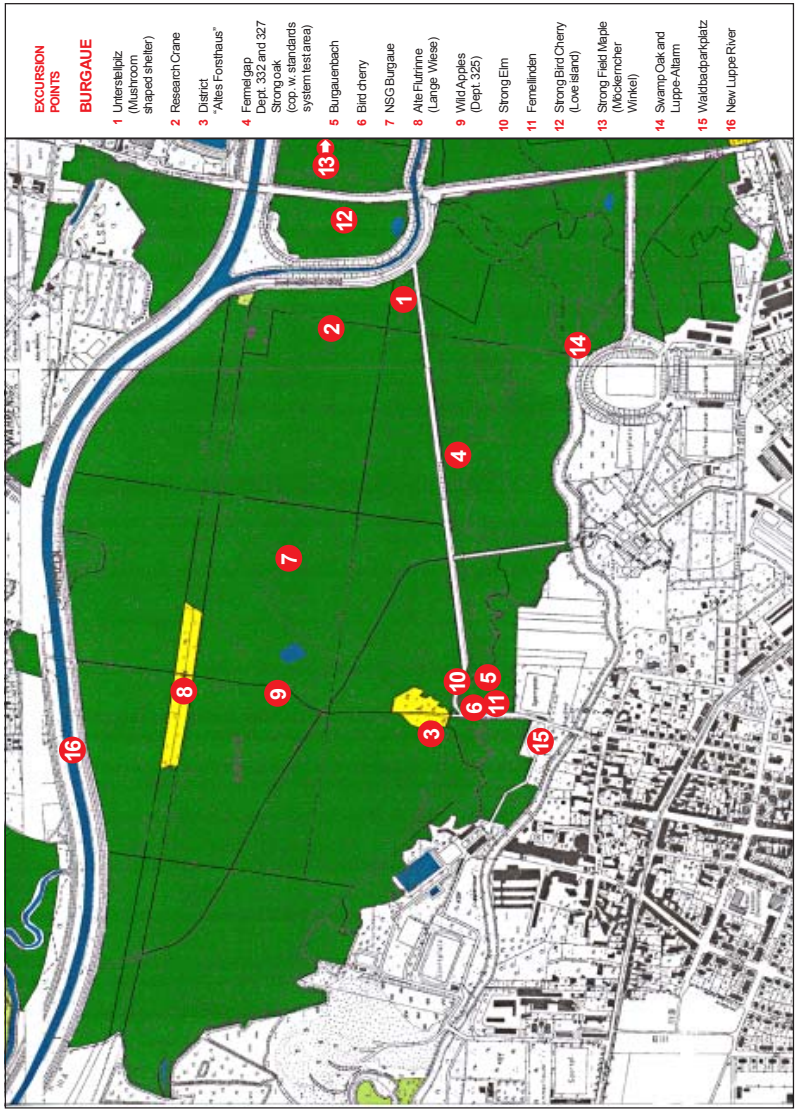
At the beginning of 2002, the shelter at "Wilden Mann" was completely destroyed through vandalism. This tendency is unfortunately on the increase.

EXCURSION POINT 2

Research Crane

The world's first tower crane, which runs on a rail track, was built in 1995 by Prof Dr. Morawetz in the southern amazonic area of Venezuela, in order to study the ecology of the canopy of a tropical rain forest.
Since this time other projects have been set up within the tropical regions to study the ecology of the forest canopy, but so far only 4 of these projects involve the use of cranes with the same capacity.
This has led the University of Leipzig, in collaboration with the Stadt Leipzig (city of Leipzig) and the Umweltforschungszentrum – UFZ (Centre for Environmental Research) Halle-Leipzig GmbH to construct a moving tower crane which can study the canopy of a forest.

This research project is comprised of an international scientists team coming from the fields of meteorology,



water factors their integration into existing ecosystems is to a large degree unsatisfactory. Such tree species are for instance the red oak (quercus robur), Pin Oak, (quercus palustris), the white hickory (carya) and the black walnut (juglans nigra).

Often, species were cultivated that were not suitable to this site. These trees have little or no ability to cope with the climatic, soil and water factors and show an unsatisfactory development or even have a negative influence on the whole ecosystem. These include trees whose natural range is in Central Europe, as for example the common beech, the scots pine and the Norway spruce.
Under natural circumstances these species would not exist in the Leipziger Auenwald.

EXCURSION POINT 15

The former Waldbadparkplatz (forest swim resort car park), The former loamy pits

This is the site of the former car park in the forest's public baths situated in Böhlitz-Ehrenberg, and was one of the Loam pits found along the southern margins of the Burgaue. A large number of these former loam pits have developed into valuable and well protected Biotopes which offer a milieu for rare amphibian species like the fire-bellied toad (Bombina bombina).

During the 19th century the Auenlehm (floodplain loam) was exploited to produce bricks. A century later the exploitation gradually came to a stop and the car park of the forest's public bath was then filled up. Within the limits of the renaturation measurements, the filling up of the pits was stopped in 2002 and the renaturated areas were again cultivated with the typical Hartholzaue (floodplain's hardwood) species. An important condition for the development of this type of wood was the formation of the typical Auenlehmschicht (floodplain's loam layer). 7400 years ago an intensified erosion of the loose layers began in the upper course of the Leipzig Rivers (Pleisse, Elster). This debris was deposited in the course of the annual floods in the area of the Leipziger Auenwald. The reason for that period's increased erosion in the upper course of these rivers is controversial. The majority of the scientists believe it was due to the increased human's settlement that led to more activity in woodland clearance.

Due to regular sedimentation, a fertile Auenlehmschicht was built which raised the level of the Aue (floodplain). This in turn meant that a greater area of land experienced less flooding. These were two factors, which allowed a gradual establishment of the Hartholzaue tree species. Because of the regular depositing of the loam, an inability to build humus layer has resulted unlike other non flooded forests.

The Auenlehmschicht exists in so many different thickness and possesses only a thickness of 0,5m in the region of the Gautzscher Spitze (southerly Leipziger Auenwald). However in the southern area of the Connewitzer Holz a thickness of 4m has been reached. The average Auenlehmschicht has a thickness of 2m.

EXCURSION POINT 16

Neue Luppe (new Luppe River)

The Luppe is a stretch of canal, which at the moment has no influence on the Hartholzauenwald (hardwood of the floodplain forest). The river regulation measures were taken between 1934 and 1938 by the imperial workers office because of the flood protection function. The old water network was separated and it fell dry. The underground water level sunk as much as 1meter. The negative effect on the stock of trees was a result of this measure and the absence of periodical floods led to changes in the composition of the Hartholzaue species in the long run. Presently numerous remains of the old river meanders can be observed.

Stadt Leipzig

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New Luppe River

EXCURSION

EXCURSION ACROSS LEIPZIG'S CITY FOREST

BURGAUE

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