

# Forestry management systems applied to Leipzig's Floodplain Forest

Leipziger Stadtwald



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Amt für Stadtgrün und Gewässer







# Leipziger Stadtwald





# Climate

↓ annual sum of precipitation: approx. 550 mm

↓ forest climate standard:

**UT** (lower mountain position and hilly landscape with a dry climate)

**UTT** (lower mountain position and hilly landscape with a very dry climate)

↓ measured mean annual temperature: about 9 **K**

↓ average length of frost period before the main vegetative season lasts 79.3 days

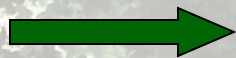
↓ main wind direction: West (46%)





# Geology and Soils

- ↓ highest point in the landscape protection area: 111.5 m above sea level
- ↓ Lowest point in the landscape protection area: 95.9 m above sea level
- ↓ Soil type: floodplain holocene alluvial loamy soil of Vege type
- ↓ the alluvial loam has an high nutrient value and a high pH value (6-7)



The formation of humus layer was not able to take place due to the periodic accumulation of the alluvial loam.

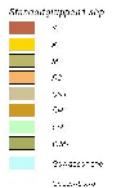


# Forestry site conditions

↓ nutrient value standard: „Rich“ (R)

↓ humid standard:

- fresh floodplains (Ü2)
- humid floodplains (U1)



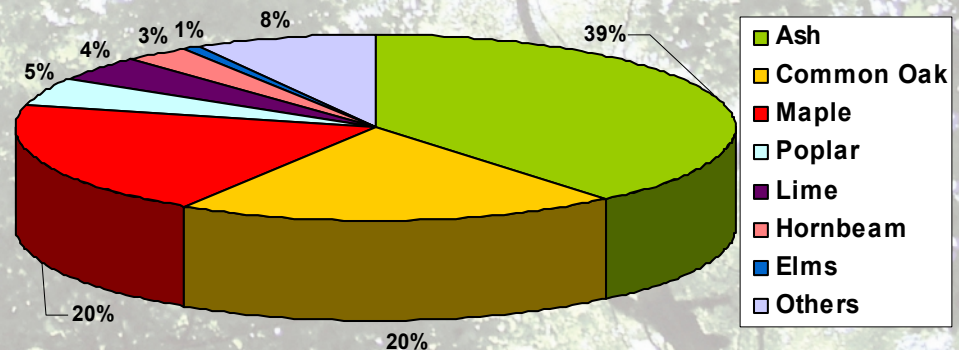


## Tree species composition

(according to the actual Forest management, effective day: 1.1.2003)

<i>Tree species</i>	<i>Proportion (% of the area)</i>
Ash ( <i>Fraxinus excelsior</i> )	39
Common Oak ( <i>Quercus robur</i> )	20
Sycamore ( <i>Acer pseudoplatanus</i> ) and Norway Maple ( <i>Acer platanoides</i> )	20
Poplar ( <i>Populus spec.</i> ) and other softwood trees	5
Small-leaved Lime ( <i>Tilia cordata</i> )	4
Hornbeam ( <i>Carpinus betulus</i> )	3
Elms ( <i>Ulmus spec.</i> )	1
Others [Common Beech ( <i>Fagus sylvatica</i> ), Red Oak ( <i>Quercus rubra</i> ), Coniferous trees etc.]	8

**Tree species composition (% of the area)**





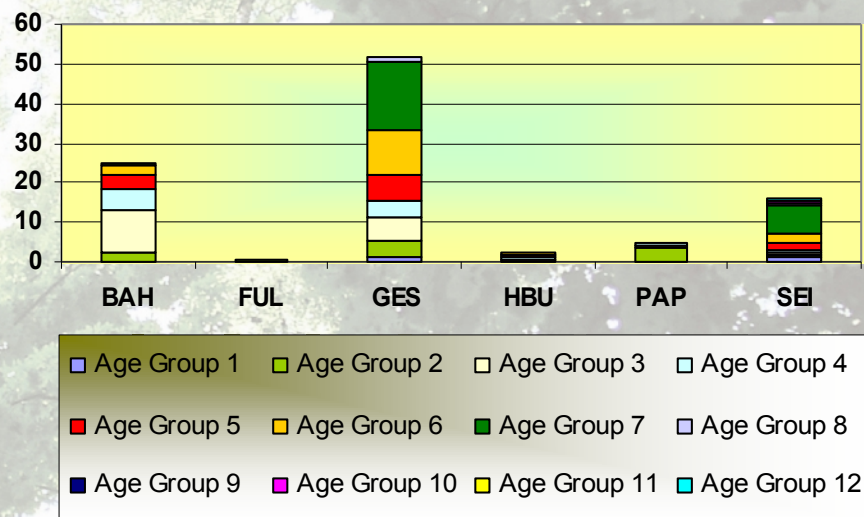
# Distribution of the age groups of the most important tree species

In the area „Burgau“ the age groups of the most important tree species are distributed as follows:

Age Group	Tree Species (%)						SUM
	BAH	FUL	GES	HBU	PAP	SEI	
1	0,0	0,0	1,4	0,0	0,1	1,0	2,5
2	2,6	0,5	3,9	0,0	3,3	0,6	10,9
3	10,7	0,2	6,2	0,5	0,9	0,7	19,2
4	4,9	0,0	3,7	0,7	0,3	0,6	10,2
5	3,9	0,0	6,5	0,5	0,0	1,8	12,7
6	2,0	0,0	11,7	0,5	0,0	2,2	16,4
7	0,9	0,0	17,1	0,0	0,0	7,4	25,4
8	0,0	0,0	0,9	0,0	0,0	0,7	1,6
9	0,0	0,0	0,0	0,0	0,0	0,1	0,1
10	0,0	0,0	0,0	0,0	0,0	0,2	0,2
11	0,0	0,0	0,0	0,0	0,0	0,0	0,0
12	0,0	0,0	0,0	0,0	0,0	0,8	0,8
<b>Grand Total</b>	<b>25</b>	<b>0,7</b>	<b>51,4</b>	<b>2,2</b>	<b>4,6</b>	<b>16,1</b>	<b>100</b>

BAH = Sycamore Maple, FUL = Elms, GES = Ash, HBU = Hornbeam, PAP = Poplar, SEI = Common Oak

**Tree Species "Burgau" (%)**







1 2 3 4 5 6 7 8 9 10 11 12

Legend symbols: 1 (dotted), 2 (solid black), 3 (diagonal lines), 4 (circle with dot), 5 (conifer), 6 (deciduous), 7 (shrub), 8 (house), 9 (sun), 10 (stream), 11 (fence), 12 (factory).













1 2 3 4 5 6 7 8 9 10 11 12

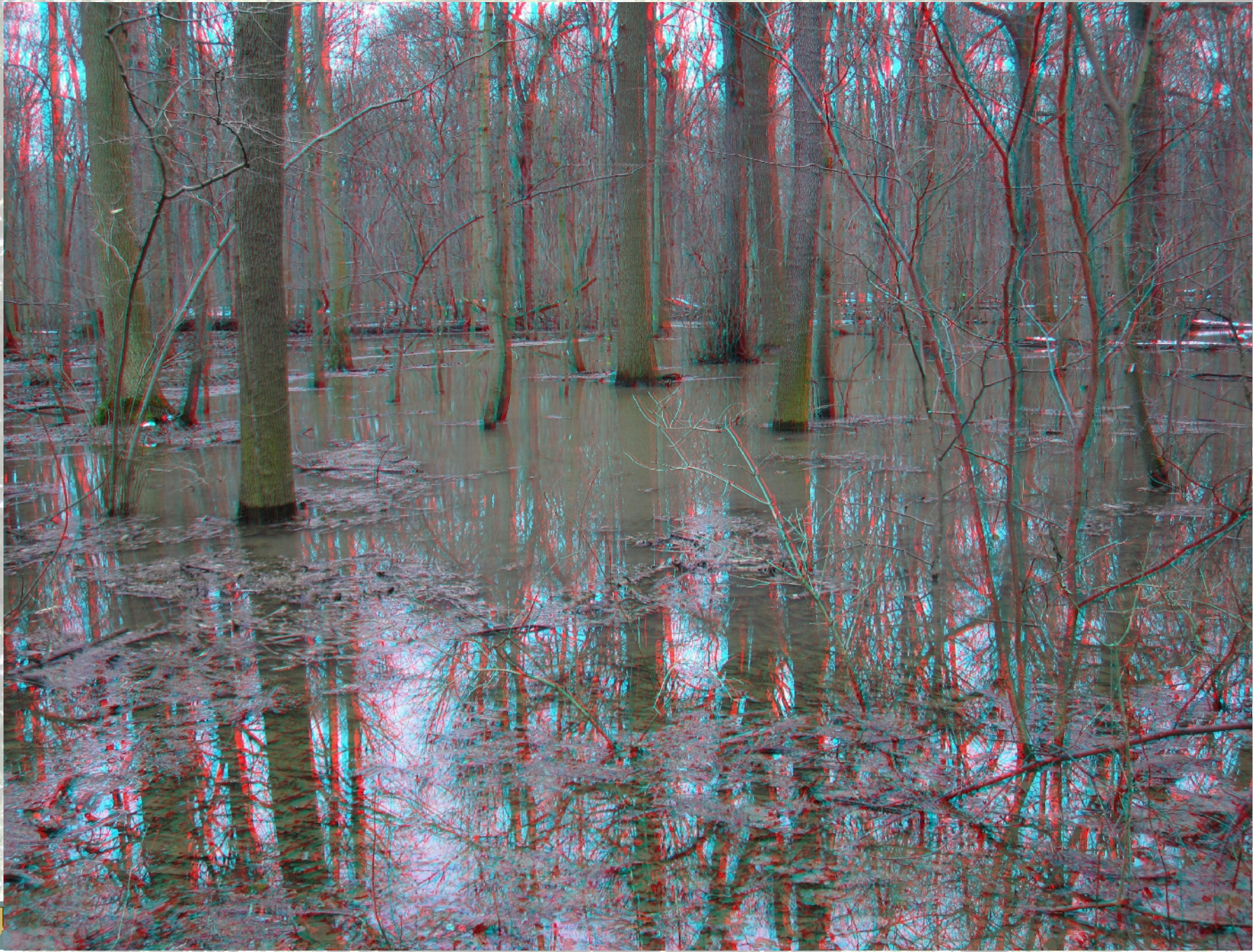


**Leipziger Stadtwald**

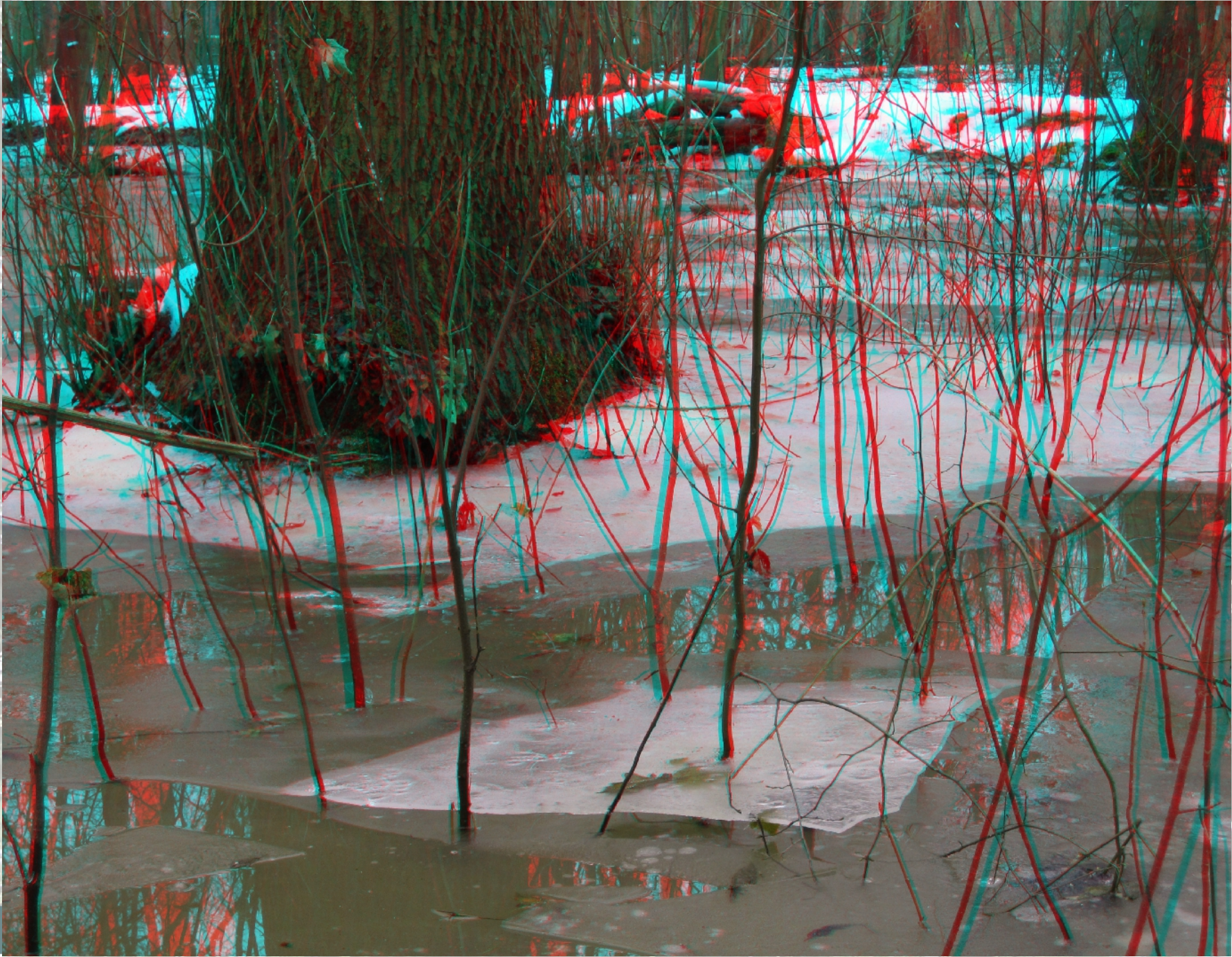




Leipziger Stadtwald











1 2 3 4 5 6 7 8 9 10 11 12



Leipziger Stadtwald









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



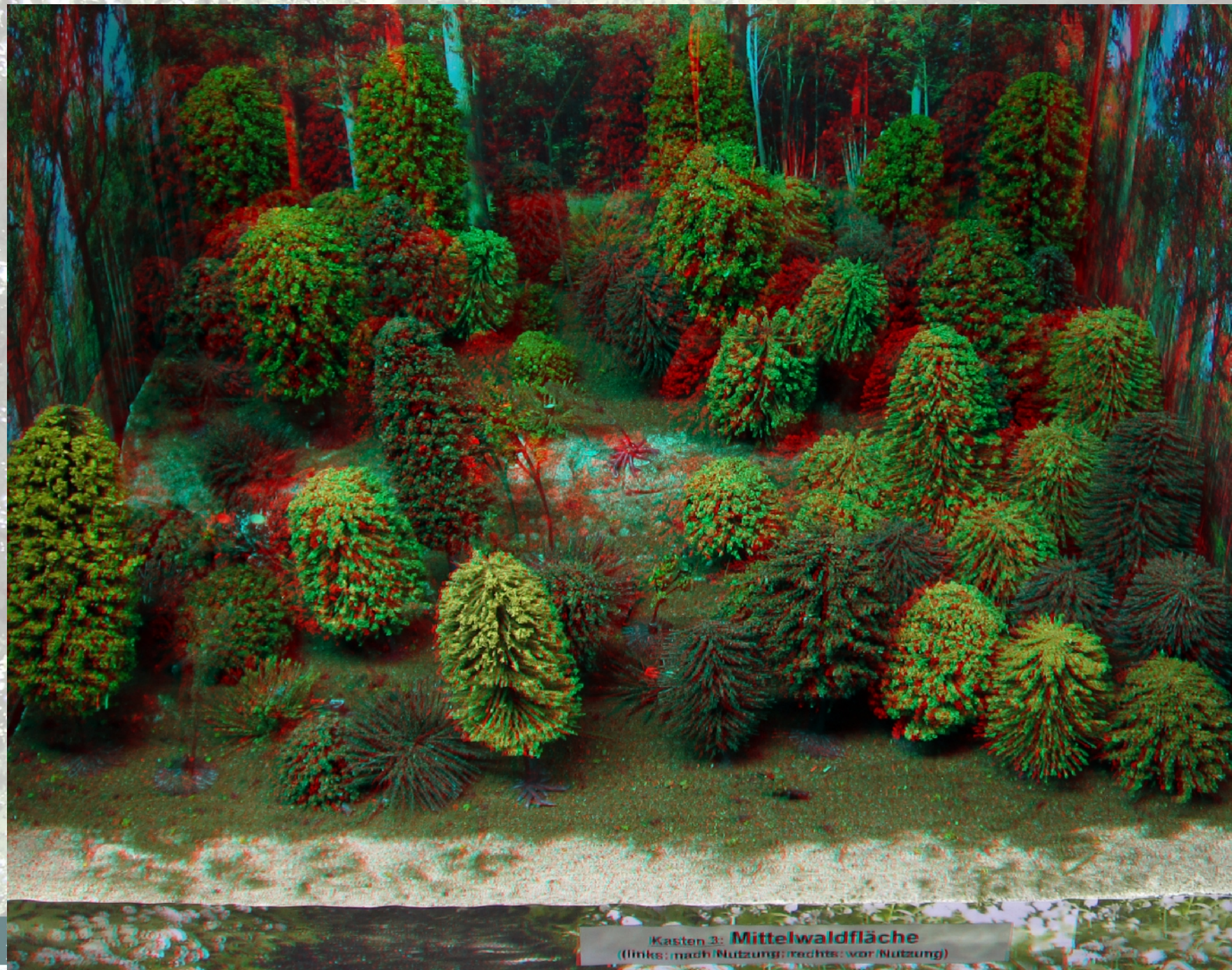
Fig. 1: The lower storey is felled. Only a few trees of seed origin remain, the so called standards.

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.

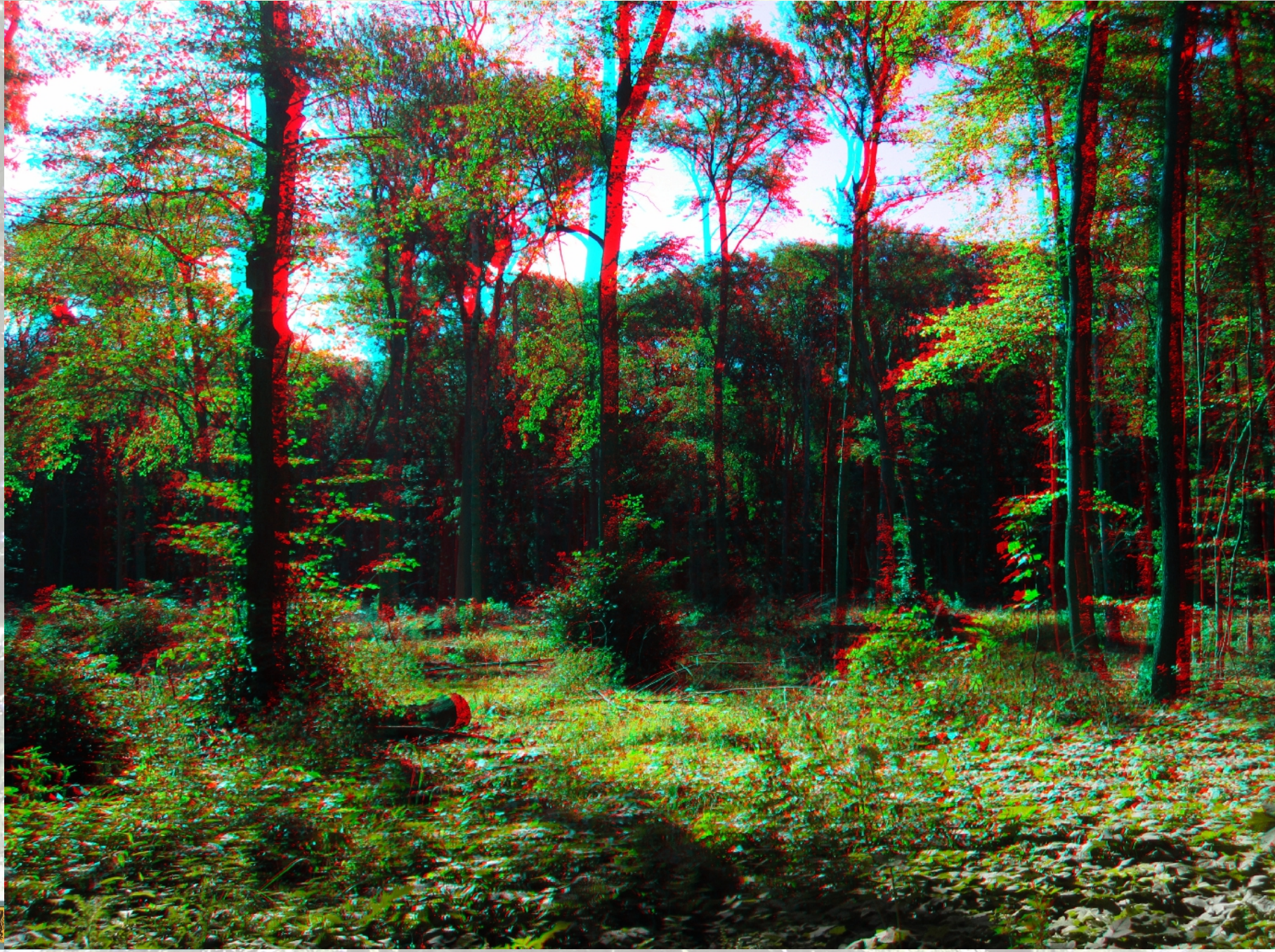




Kasten 3: **Mittelwaldfläche**  
(links: nach Nutzung; rechts: vor Nutzung)



Leipziger Stadtwald

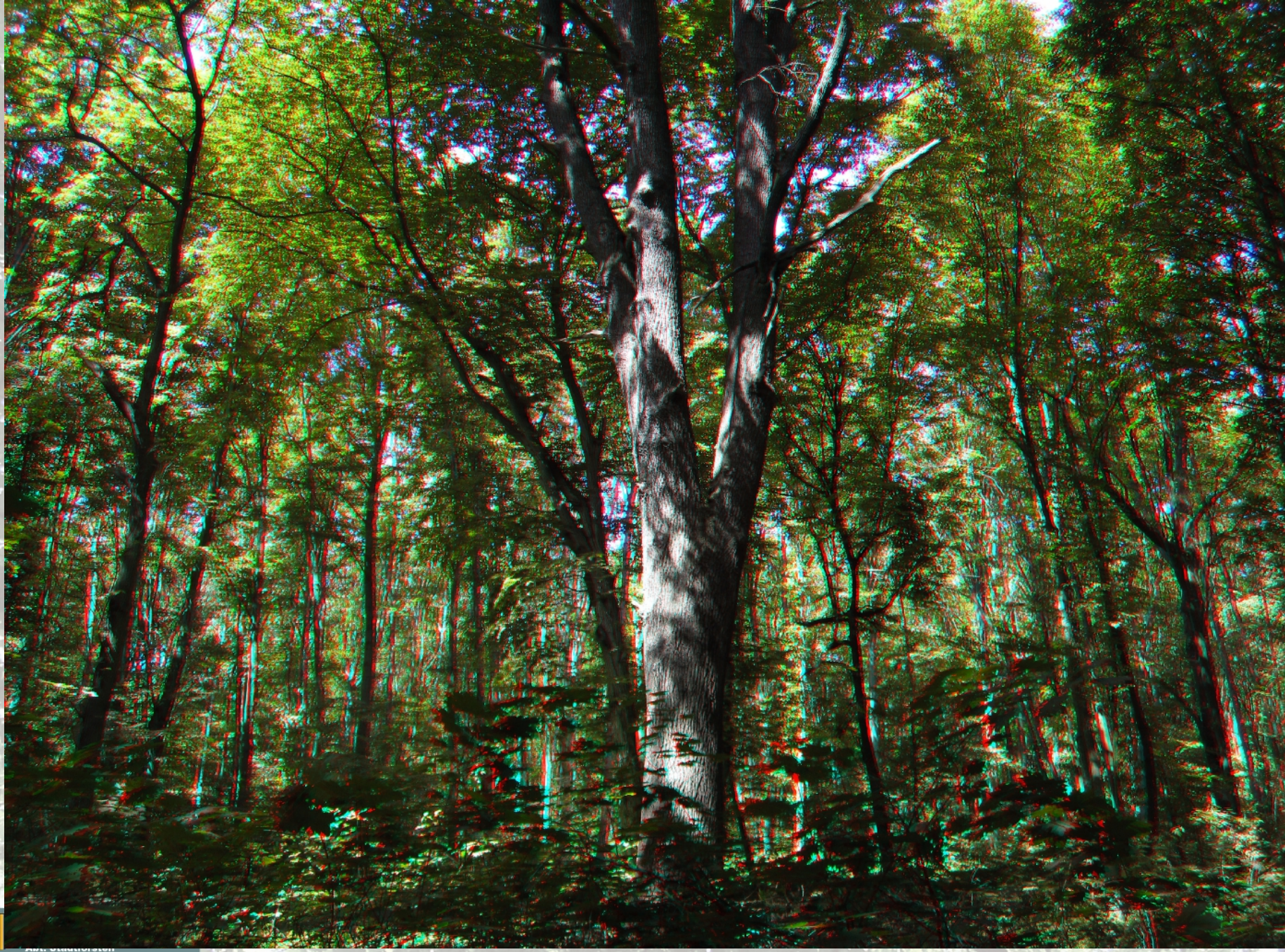








# Leipziger Stadtwald





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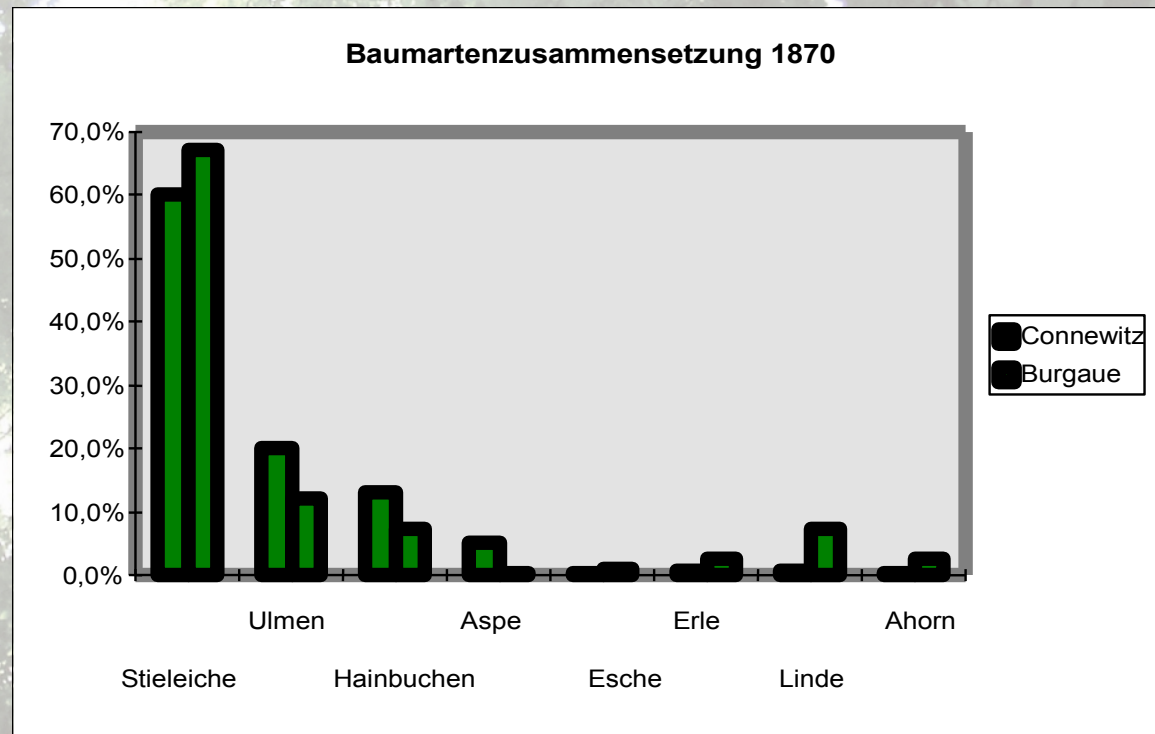




## Tree species composition in 1870 ( Upper-Group):

	Connewitz	Burgau
Common Oak ( <i>Quercus robur</i> )	60,0 %	67,0 %
Elms ( <i>Ulmus spec.</i> )	20,0 %	12,0 %
Hornbeam ( <i>Carpinus betulus</i> )	13,0 %	7,3 %
Aspen ( <i>Populus tremula</i> )	5,0 %	0,3 %
Poplar ( <i>Populus spec.</i> )	0 %	0 %
Birch ( <i>Betula spec.</i> )	0 %	0 %
Black Alder ( <i>Alnus spec.</i> )	0,7 %	2,5 %
Lime ( <i>Tilia spec.</i> )	0,6 %	7,3 %
Maple ( <i>Acer spec.</i> )	0,4 %	2,7 %
Ash ( <i>Fraxinus excelsior</i> )	0,3 %	0,9 %

(Gottfried Lange, 1959)





Art	B1	B2	B3	B4	L1	L2	L3	L4	L5	xylo	BV	RL-SN	RL-D
<i>Bembidion lampros</i>	-	-	-	-	-	-	-	4	-	-	-	-	-
<i>Calodromius spiliotus</i>	-	-	-	-	-	-	-	-	-	x	-	-	-
<i>Calosoma inquisitor</i>	1	1	-	-	-	-	-	-	-	-	§	3	3
<i>Carabus coniaceus</i>	15	6	21	9	-	-	-	-	1	-	§	-	-
<i>Carabus granulatus</i>	-	1	2	22	2	9	17	1	2	-	§	-	-
<i>Carabus nemoralis</i>	6	13	7	32	11	42	20	39	19	-	§	-	-
<i>Cychtus caraboides</i>	1	-	-	-	-	-	-	-	-	-	-	-	-
<i>Dromius quadrimaculatus</i>	-	-	-	-	-	-	-	-	-	x	-	-	-
<i>Dromius sigma</i>	-	-	-	-	-	-	-	-	-	x	-	-	-
<i>Harpalus latus</i>	-	-	1	2	3	4	2	10	-	-	-	-	-
<i>Leistus rufomarginatus</i>	-	1	-	-	-	-	-	-	-	-	-	R	-
<i>Loricora pilicornis</i>	3	-	-	-	-	-	-	-	-	-	-	-	-
<i>Nebria brevicollis</i>	-	-	-	21	-	2	-	-	2	-	-	-	-
<i>Notiophilus palustris</i>	-	-	-	-	-	1	-	-	-	-	-	-	-
<i>Notiophilus biguttatus</i>	-	-	-	-	-	-	-	1	-	-	-	-	-
<i>Ophonus nitidulus</i>	-	-	-	-	-	-	-	1	-	-	-	3	-
<i>Paranchus albipes</i>	-	-	-	-	1	-	-	-	-	-	-	-	-
<i>Platynus assimilis</i>	1	7	-	27	29	11	9	18	10	-	-	-	-
<i>Pocillus cupreus</i>	1	-	1	-	-	-	-	-	1	-	-	-	-
<i>Pseudophonus rufipes</i>	3	-	1	-	-	-	-	-	33	-	-	-	-
<i>Pterostichus molanarius</i>	2	1	4	15	1	-	-	-	-	-	-	-	-
<i>Pterostichus niger</i>	4	1	28	11	-	-	-	-	-	-	-	-	-
<i>Pterostichus oblongopunctatus</i>	51	19	8	81	42	9	8	4	7	-	-	-	-
<i>Stenolophus mixtus</i>	-	-	-	-	-	3	-	4	-	-	-	-	-
<i>Stomis pumicatus</i>	-	1	-	1	-	-	-	-	-	-	-	-	-
<i>Tachyta nana</i>	-	-	-	-	-	-	-	-	-	x	-	-	-

Erläuterungen:

- B1-B4: Fallenstandorte 1994/95 am Bauerngraben
- L1-L5: Fallenstandorte 1996 Bereich Lützschena
- xylo: Untersuchung xylobionter Käfer (BLNSL 1996)
- BV: Bundesartenschutzverordnung
- RL-SN: Rote Liste Sachsen (ARNDT ET AL. 1995)
- RL-D: Rote Liste Deutschland (TRAUTNER ET AL. 1998)

**Holzbewohnende (xylobionte) Käfer**

Artenbestand

Im Untersuchungsgebiet konnten bei den 1996 durchgeführten Erhebungen insgesamt 153 Holzkäferarten nachgewiesen werden, und weitere Arten wurden von BERNHARD (1998) gemeldet. Drei Arten sind bereits in der Literatur für die Burgau erwähnt. Bei zwei weiteren Arten ist die Lokalisierung der alten Fundangabe unsicher. Eine Übersicht über das festgestellte Artenspektrum zeigt die Tabelle (Nomenklatur nach LUCHT 1987, LOHSE & LUCHT 1989, LOHSE & LUCHT 1992, LOHSE & LUCHT 1994):

Familie	Art	Teilgebiet			Fund
		Nord	West	Ost	
Carabidae (Laufkäfer)	<i>Tachyta nana</i>	x	-	-	in/van/au/bei
Histeridae (Stutzkäfer)	<i>Paromalus flavicornis</i>	x	x	x	Li, Es, Ei, Hb
	<i>Hololepta plana</i>	-	x	-	Pap
Leiodae	<i>Anisotoma humeralis</i>	x	x	-	Bi-Pilz, Ei-Pilz, Hb
	<i>Anisotoma orbicularis</i>	x	-	-	Ei-Pilz
	<i>Liodopria sericornis</i>	-	-	-	-
Agathidium	<i>Agathidium varians</i>	-	x	x	Bi, Hb, Zucht, Leimring
	<i>Agathidium nigropenne</i>	x	-	x	Ei, Leimring
Ptilidae (Haarfüßler)	<i>Ptilinella tenella</i>	-	x	-	Pap
Scaphioidae (Kahnkäfer)	<i>Scaphidium quadrimaculatum</i>	-	-	x	Ei
	<i>Scaphisoma agraricum</i>	x	x	-	Ei, Pap, LH
	<i>Scaphisoma boleti</i>	-	x	-	LH
	<i>Scaphisoma assimile</i>	x	-	-	LH



Familie	Art	Teilgebiet			Fund ir/ an/ auf/ bei
		Nord	West	Ost	
Staphylinidae (Kurzflügler)	<i>Siagonium quadricorne</i>	-	x	-	Pap
	<i>Phloeocharus subtilissima</i>	-	x	x	Ah, Ei, Hb, Has
	<i>Phloeonomus punctipennis</i>	x	-	-	Ei
	<i>Nurtobius lentus</i>	-	x	-	Leimring
	<i>Baptolinus affinis</i>	-	-	-	
	<i>Gabnius splendidulus</i>	x	x	-	Ei, Pap
	<i>Sepeophilus testaceus</i>	x	x	x	Ei, UI
	<i>Gyrophæna argustata</i>	x	x	x	Ei-Pilz, LH-Pilze
	<i>Gyrophæna strictula</i>	-	-	x	LH-Pilz
	<i>Leptusa pulchella</i>	-	x	x	LH
	<i>Leptusa fumida</i>	-	-	x	Hb
	<i>Euryusa castanoptera</i>	-	x	-	LH
	<i>Boitochara obliqua</i>	x	x	x	Ei, Hol, Hb
	<i>Boitochara bolda</i>	-	x	x	Ei, LH-Pilze
	<i>Boitochara lucida</i>	-	x	x	Ei, LH Pilze
	<i>Diraræa aequata</i>	-	x	x	LH
	<i>Phaeopora testacea</i>	-	-	x	Hb
<i>Phænopora bambusaria</i>	-	-	x	Hb	
Lycidae (Roidecken-Käfer)	<i>Pyropterus nigroruber</i>	x	-	x	Leimring
Cartharidae (Weichkäfer)	<i>Malthinus serripunctatus</i>	x	-	-	Leimring
Malachilacae (Malachiten-Käfer)	<i>Hyphæus flavipes</i>	-	x	x	Leimring
	<i>Malachius bipustulatus</i>	x	x	x	Blü
	<i>Axinotarsus marginalis</i>	x	-	-	Zucht
Meirycidae (Wollhaar-Käfer)	<i>Dasytes plumbeus</i>	x	x	x	Woi, Ei, Blü, Ah, Has, Zucht, Leimring
	<i>Dasytes acrosus</i>	x	x	-	Ei
Cleridae (Buntkäfer)	<i>Thanasimus formicarius</i>	-	-	x	Leimring
Lymexylonicae (Wertkäfer)	<i>Lymexylon navale</i>	x	x	x	Ei, Leimring
Etoridae (Schmelkäfer)	<i>Ampedus cardinalis</i>	-	-	x	Ei
	<i>Ampedus pomorum</i>	x	x	x	Ei, Hb, Leimring
	<i>Ampedus triangulum</i>	-	x	-	UI
	<i>Procaerus tibialis</i>	-	-	x	Es, Leimring
	<i>Melanotus castanipes</i>	x	x	x	UI, Hb, Ei, Es, Ah, Leimring
	<i>Lacon querceus</i>	-	-	x	Leimring
	<i>Denticollis linearis</i>	-	x	x	Ei, Leimring
Cerophylidae	<i>Cerophylus staleroides</i>	-	-	-	
Eucnemidae	<i>Melasis buprestoides</i>	-	x	x	Ah, Hb
	<i>Eucnemis capucina</i>	x	x	x	Leimring
Buprestidae (Prachtkäfer)	<i>Agrilus ater</i>	-	x	-	Pap
	<i>Agrilus sulcicollis</i>	x	-	-	Ei
Dermestidae (Sackkäfer)	<i>Mogotoma undata</i>	-	-	x	Hb
Cerylonidae	<i>Cerylon histricoides</i>	x	x	x	Ah, Hb
	<i>Cerylon ferrugineum</i>	x	x	x	Ei, Hb, Leimring
Nitidulidae (Glanzkäfer)	<i>Carpophilus sexpustulatus</i>	-	-	-	
Rhizophagidae (Wurzelkäfer)	<i>Rhizophagus bipustulatus</i>	x	-	x	Ei, Leimring
Cucujidae (Plattkäfer)	<i>Ucleota planata</i>	x	x	x	UI, Li, Ei, Pap, Hb, Ah
Sivanidae	<i>Sivanus bidentatus</i>	x	-	-	Ei
	<i>Sivanus unidentatus</i>	-	x	-	Pap
Erotylidae (Pilzkäfer)	<i>Tritoma bipustulata</i>	x	x	-	Ei-Pilz
	<i>Dacno ruficornis</i>	-	-	-	
	<i>Dacno bipustulata</i>	x	x	-	Ei-Pilz, Hb
Laemophloeidae	<i>Cryptolestes dupicalis</i>	x	-	x	Ei
	<i>Leptobius juniperi</i>	-	x	-	UI
Mycetophagidae (Baumschwammkäfer)	<i>Litargus cornexus</i>	x	x	x	UI, Ei, Hb, Li, Leimring
	<i>Mycetophagus quadripustulatus</i>	-	-	-	
	<i>Mycetophagus piceus</i>	x	x	-	Ei
Colydiidae (Rindenkäfer)	<i>Pycnomerus terebrans</i>	-	x	-	Ei
	<i>Synchita humerensis</i>	x	x	-	Ei, Ah, Zucht
	<i>Cleonus undatus</i>	-	-	x	Hb
	<i>Bitoma cremaia</i>	x	x	-	UI, Pap, Ei
	<i>Colydium elongatum</i>	-	-	-	
	<i>Colydium filiforme</i>	x	x	x	Ei
Endomychidae (Säublingskäfer)	<i>Endomychus coccheus</i>	-	x	-	Ei
Cisidae (Schwammfresser)	<i>Rhopalodontus perforatus</i>	-	x	-	Bl, Zucht
	<i>Sucacis fronticornis</i>	-	x	-	Er-Pilz
	<i>Cis ciliatus</i>	-	x	-	Bl-Pilz, Zucht





Familie	Art	Teilgebiet			Fund in/nau/bsl	
		Nord	West	Ost		
Cisidae (Schwammkäfer), Forb.	<i>Cis hispidus</i>	x	-	-	Ei	
	<i>Cis lutei</i>	x	x	x	Cr, Pap	
	<i>Cis castaneus</i>	x	x	x	Hb, Ei	
	<i>Cis pygmaeus</i>	x	-	-	Ei	
	<i>Cis festivus</i>	x	-	x	Ei	
Anobiidae (Pochkäfer)	<i>Ennearthron cornutum</i>	-	x	x	Hb, Ei, Has, Ah, Leimring	
	<i>Iteobius imperialis</i>	x	x	-	Ei, Hb, Ah, Li	
	<i>Xestobium rufovillosum</i>	x	x	x	Ei, Pac, Ah	
	<i>Anobium nitidum</i>	-	-	x	Hb	
	<i>Anobium fulvicorne</i>	x	x	x	Ei, Hb, Zucht, Leimring	
	<i>Ptilinus pectinicornis</i>	x	x	x	Es, Ul, Ah, Hb, Zucht, Leimring	
	<i>Dorcatoma chrysomelina</i>	-	-	x	Leimring	
Dorcatomidae	<i>Dorcatoma dresdensis</i>	-	x	-	Ei-Pilz	
	<i>Dorcatoma robusta</i>	-	x	-	Zucht, Leimring	
	<i>Ischnomera caerulea foyanae*</i>	x	-	-	Ei	
Salpingidae (Scheinrüsselkäfer)	<i>Lissodema quadripustulatus</i>	-	x	x	Än	
	<i>Rhinosisus planirostris</i>	x	x	x	E, Hb, Ul, U, Ah, Es	
	<i>Vincenzellus ruficollis</i>	x	x	x	schwärm., Ei, Än, U, Ib, Li, Has	
Pyrochroidae (Feuerkäfer)	<i>Pyrochroa coccinea</i>	x	x	x	E, Ah, Pap	
	<i>Pyrochroa serraticornis</i>	-	x	x	Es, Veg.	
Scraptiidae (Seidenkäfer)	<i>Scraptia fuscata</i>	-	-	x	Leimring	
	<i>Anaspis frontalis</i>	x	x	x	Bü, Ei, Leimring	
	<i>Anaspis maculata</i>	x	x	x	Bü, Leimring	
	<i>Anaspis ruficollis</i>	x	x	x	Bü, Leimring	
Aderidae (Müllkäfer)	<i>Aderus pygmaeus</i>	-	-	x	Leimring	
Rhizophoridae (Fächerkäfer)	<i>Pelaeotoma fenolica</i>	-	-	-		
Mordellidae (Stachelkäfer)	<i>Tomoxia biguttata</i>	x	-	-	Leimring	
Melandryidae (Düsterkäfer)	<i>Crochostia undulata</i>	-	x	x	Hb, Ah	
Allculidae (Pflanzenkäfer)	<i>Mycoctochara linearis</i>	x	-	x	E, Leimring	
Tenebrionidae (Schwarzkäfer)	<i>Eledona agnoscium</i>	-	x	-	Kr-Pilz	
	<i>Diaporis boloti</i>	x	x	-	B-Pilz, Ei-Pilz	
	<i>Scaphidema metallicum</i>	x	x	x	E, Ah, Ul, Ib, Di, Li, Has	
	<i>Pentaphyllus testaceus</i>	-	-	x	Leimring	
	<i>Corticeus unicolor</i>	x	x	x	E, Hb	
	<i>Corticeus bicolor</i>	x	x	x	Ul, Es	
	<i>Corticeus fasciatus</i>	x	x	x	Ei	
	<i>Palorus depressus</i>	x	x	-	Ul, Ei	
	<i>Uloa culmatis</i>	-	x	x	Hb	
	Scarabaeidae (Rosenkäfer)	<i>Cetonia aurata</i>	x	-	-	Blü, Ei
		<i>Protaetia aeruginosa</i>	-	x	-	auf Weg
		<i>Protaetia lugubris</i>	x	-	-	schwärm., im E
		<i>Valgus hemipterus</i>	x	x	-	Ul, auf Weg, Blü
Lucanidae (Hirschkäfer)	<i>Dorcus parallelipipedus</i>	x	-	-	Ei	
Cerambycidae (Bockkäfer)	<i>Rhagium sycophanta</i>	-	x	-	schwärm.	
	<i>Rhagium mordax</i>	x	x	x	Ei, Hb, Blü	
	<i>Stenocorus meridianus</i>	x	-	-	Veg.	
	<i>Acmaeops collaris</i>	-	x	-	Blü	
	<i>Grammoptera ustulata</i>	x	x	-	Ei, Blü	
	<i>Grammoptera ruficornis</i>	x	x	x	Blü, Ei, Leimring	
	<i>Atosterna tabacicolor</i>	x	x	x	Blü, Ah	
	<i>Strangalia aethiops</i>	-	x	-	schwärm., Blü	
	<i>Strangalia melanura</i>	x	x	-	Blü	
	<i>Molochus minor</i>	-	-	x	Ei	
	<i>Aromia moschata</i>	x	-	x	Weil, Veg.	
	<i>Phymatodes testaceus</i>	x	x	-	Ei	
	<i>Phymatodes alni</i>	x	-	-	Ei	
	<i>Clytus arvensis</i>	-	x	x	Veg., Blü	
	<i>Anaglyptus mysticus</i>	x	x	x	Hb, Ah, Zucht, Leimring	
	<i>Mesosa nebulosa</i>	x	-	-	Ei	
	<i>Pogonocherus hispidus</i>	-	x	-	Ah, Pap	
<i>Leipox nebulosus</i>	x	x	x	Ei, Hb		
<i>Exocentrus adspersus</i>	x	-	-	Ei-Zucht		
<i>Saperda populea</i>	-	-	-			
<i>Stenostola dubia</i>	-	x	-	LH		
<i>Tetrops praevista</i>	x	-	-	Leimring		



Familie	Art	Teilgebiet			Fund in/an/auf/bei
		Nord	West	Ost	
Anthridoae (Breitrüßler)	<i>Tropideres albivestris</i>	-	-	x	Ei
	<i>Anthrabus albinus</i>	x	x	x	Ei, Li, Hb, Has, Ah
Scolytidae (Borkenkäfer)	<i>Scolytus intricatus</i>	x	x	x	Ei
	<i>Scolytus carolin</i>	-	-	x	Hb
	<i>Scolytus pygmaeus</i>	x	x	-	Ul, Zucht
	<i>Scolytus scolytus</i>	x	x	x	Ul
	<i>Scolytus multistriatus</i>	x	x	x	Ul
	<i>Ilyurgops palliatus</i>	-	-	x	Fi
	<i>Hylesinus crepitus</i>	-	x	x	Es
<i>Hylesinus oleiperda</i>	-	-	x	Es	
<i>Leptisinus fraxini</i>	x	x	x	Es	
<i>Dryocoetes villosus</i>	-	x	-	Leimring	
<i>Eimporus tiliae</i>	x	-	-	Li-Zucht	
<i>Xyleborus dispar</i>	-	x	-	Ei	
<i>Xyleborus monographus</i>	x	x	-	Ei	
Curculionidae (Rüsselkäfer)	<i>Cossonus linearis</i>	-	x	-	Pap
	<i>Sirenocorynus truncorum</i>	x	-	-	Ei
	<i>Magdalis armigera</i>	x	x	-	Ul
	<i>Trachodes hispidus</i>	-	x	x	Es, Ei, U, Ah, Hb

Erläuterungen:

Ah:	Ahorn	Kir:	Kirsche
Bi:	Birke	LH:	Laubholz
Blü:	Blüten	Li:	Linde
Ei:	Eiche	Pap:	Pappe
Er:	Erie	schwärm:	schwärmdende Käfer
Es:	Esche	U:	Ulme
Fi:	Fichte	Veg.:	auf krautiger Vegetation
Has:	Hasel	We:	Weide
Hb:	Hainbuche		
Hol:	Holunder		

Schutzrelevante Arten

Von 162 nachgewiesenen Holzkäferarten sind 47 als gefährdet oder schutzrelevant einzu-stufen. In den Roten Listen der Bockkäfer sowie der Blatthorn- und Hirschkäfer sind 13 Arten aufgeführt. Zwei Arten werden als vom Aussterben bedroht, drei Arten als stark gefährdet, vier Arten als gefährdet und drei Arten als potentiell gefährdet eingestuft. Eine weitere Art wird in der Kategorie „im Rückgang“ geführt. Für Holzkäfer aus anderen Artengruppen wurde die bundesweite Rote Liste herangezogen.

Die im Untersuchungsgebiet nachgewiesenen schutzrelevanten Arten, Fundorte, larvale Entwicklungshabitate und Rote-Listen-Einstufungen

Art	Teilgebiet, Fundangaben (Revierort, Abteilung usw.)	Entwicklung	RL-SM	RL-D
<i>Liodontia serricornis</i>				3
<i>Hybebeus flavipes</i>	O, Leimring an Esche in 326 a1	in trocken-morscher Laubholzästen und -stämmen	n.b.	3
<i>Lymexylon navale</i>	N, freie Baumgruppe südlich des Hundewasser; W, Hänlicher Holz, Leimring Eiche in 374 a2]	in frisch abgestorbenen Stämmen, besonders in Eichen	n.b.	3
<i>Ampedus cardinalis</i>	O, Allieche auf Lichtung beim alten Forsthaus	in morschen Innenholz von hohlen Eichen	n.b.	1
<i>Ampedus triangulum</i>	W, Ulme an Weg	in morschen Laubholzästen und -stämmen	n.b.	3
<i>Procraterus tibialis</i>	O, Leimring Esche in 326 a1; O, Esche in 329 a2	in morschen Stämmen und Ästen sowie in Baumröhren	n.b.	2
<i>Lisson quercivorus</i>	O, Leimring Esche in 326 a1	in morschen Innenholz von hohlen Eichen	n.b.	1



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



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



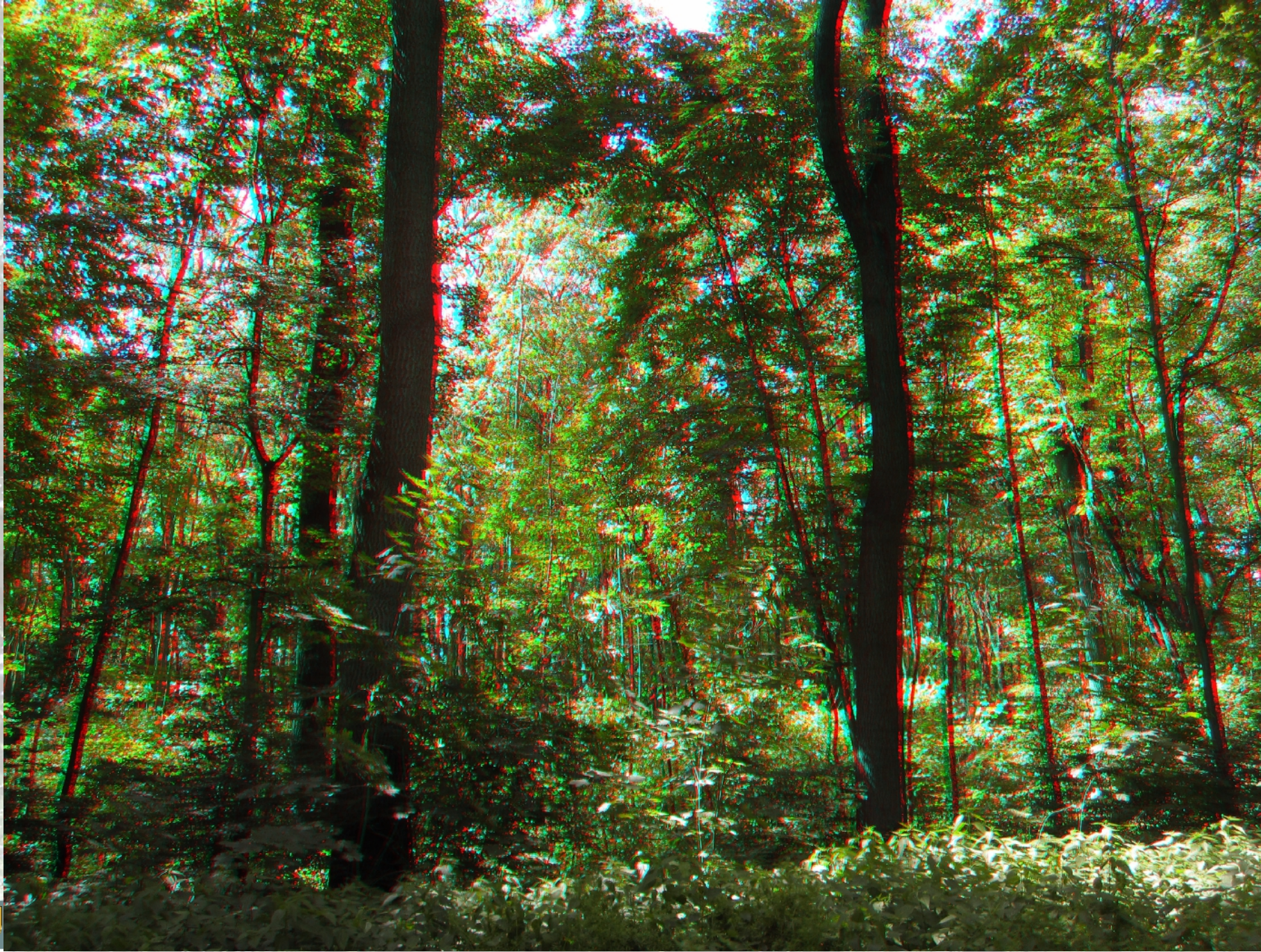
Fig. 6: The regeneration grows up into the crowns of the standards.



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.



# Leipziger Stadtwald



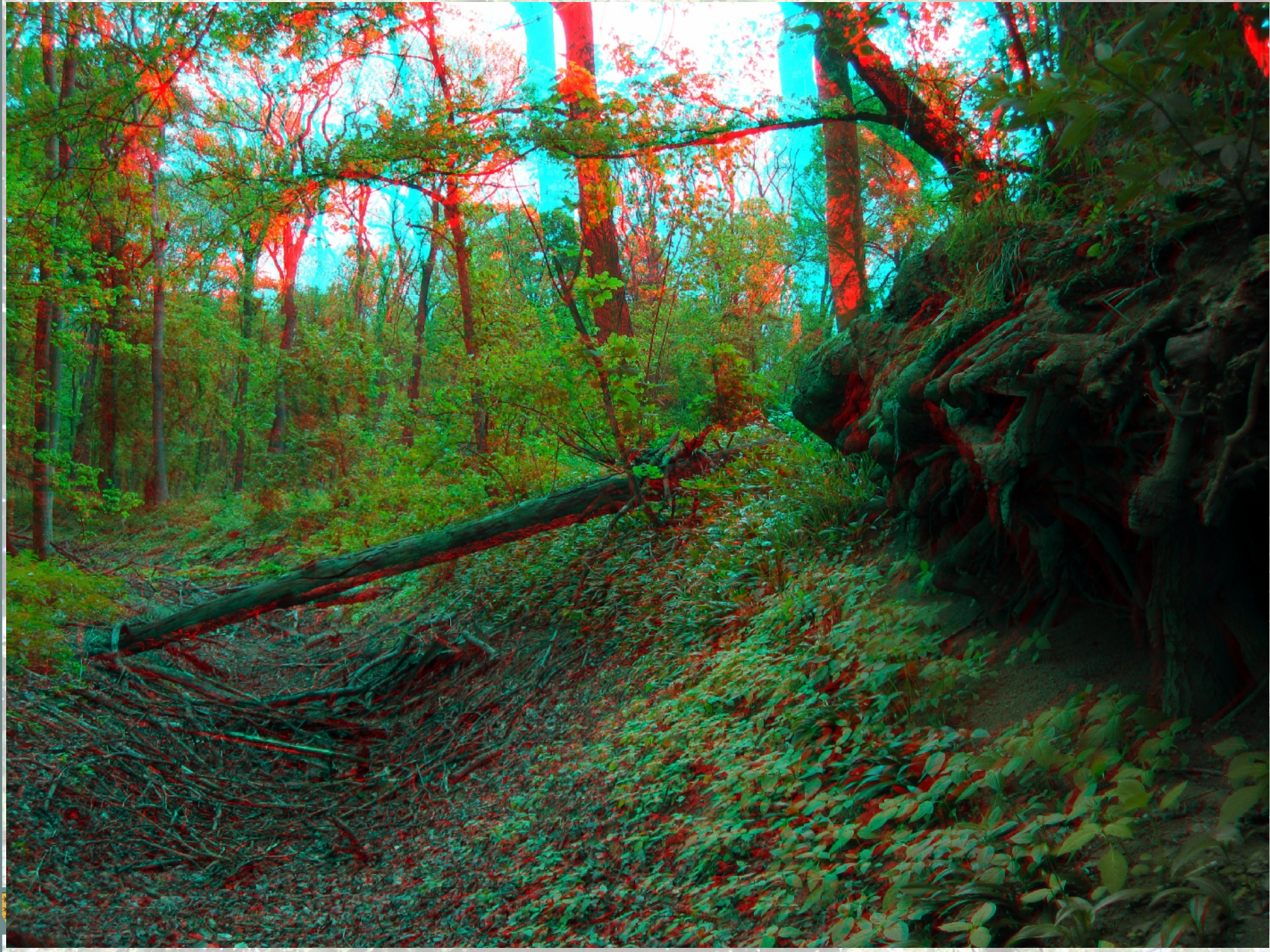


# Leipziger Stadtwald



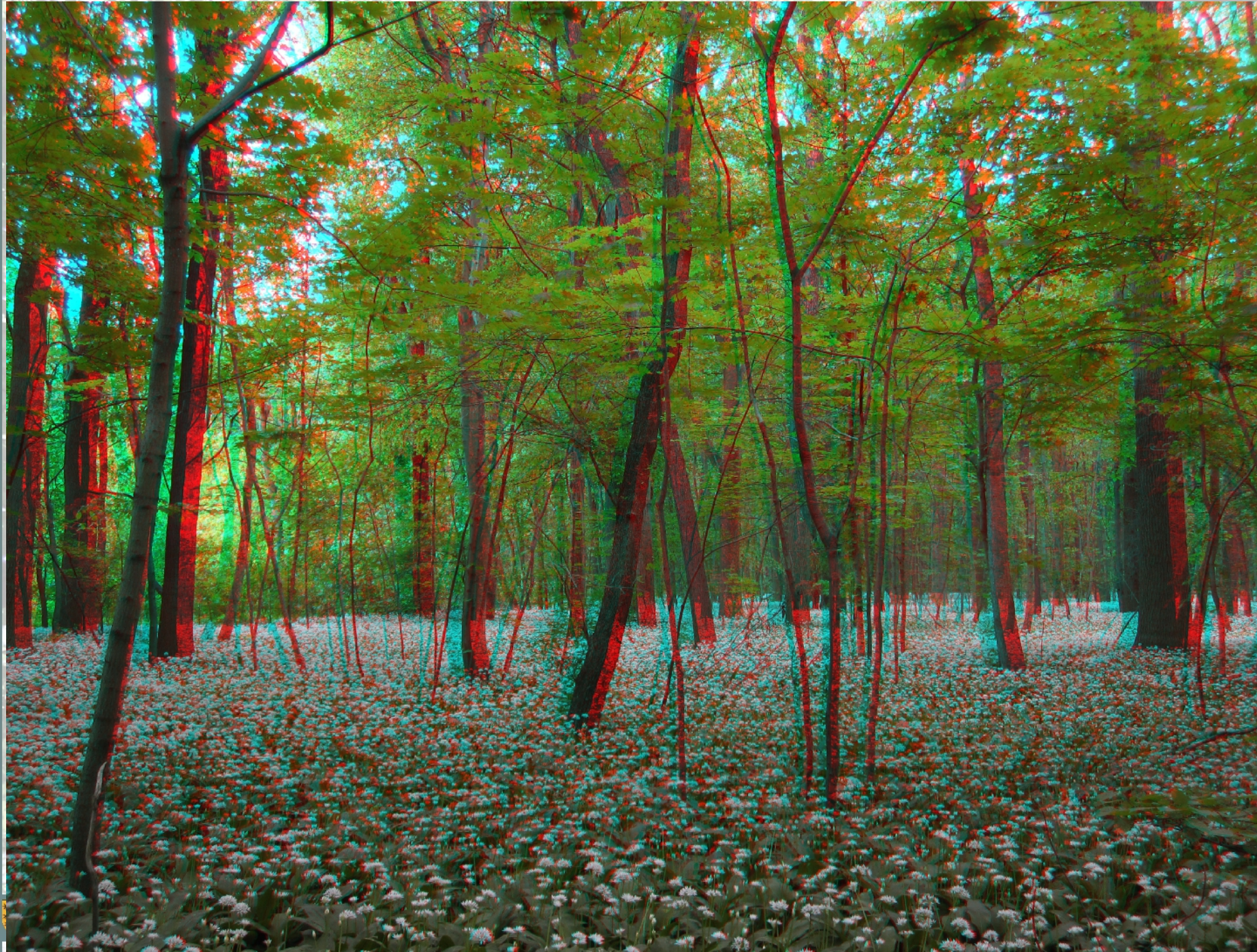


**Leipziger Stadtwald**



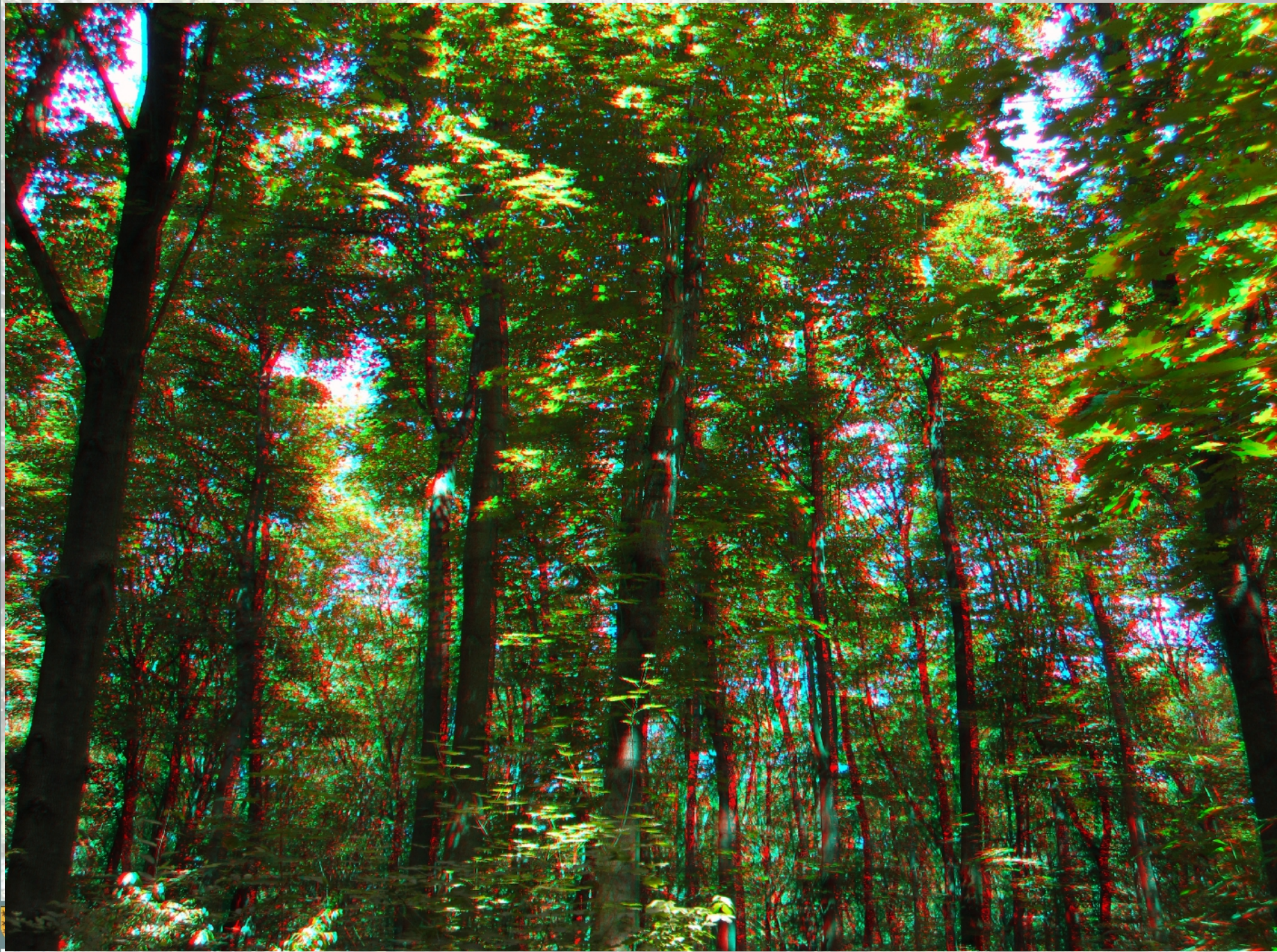


Leipziger Stadtwald



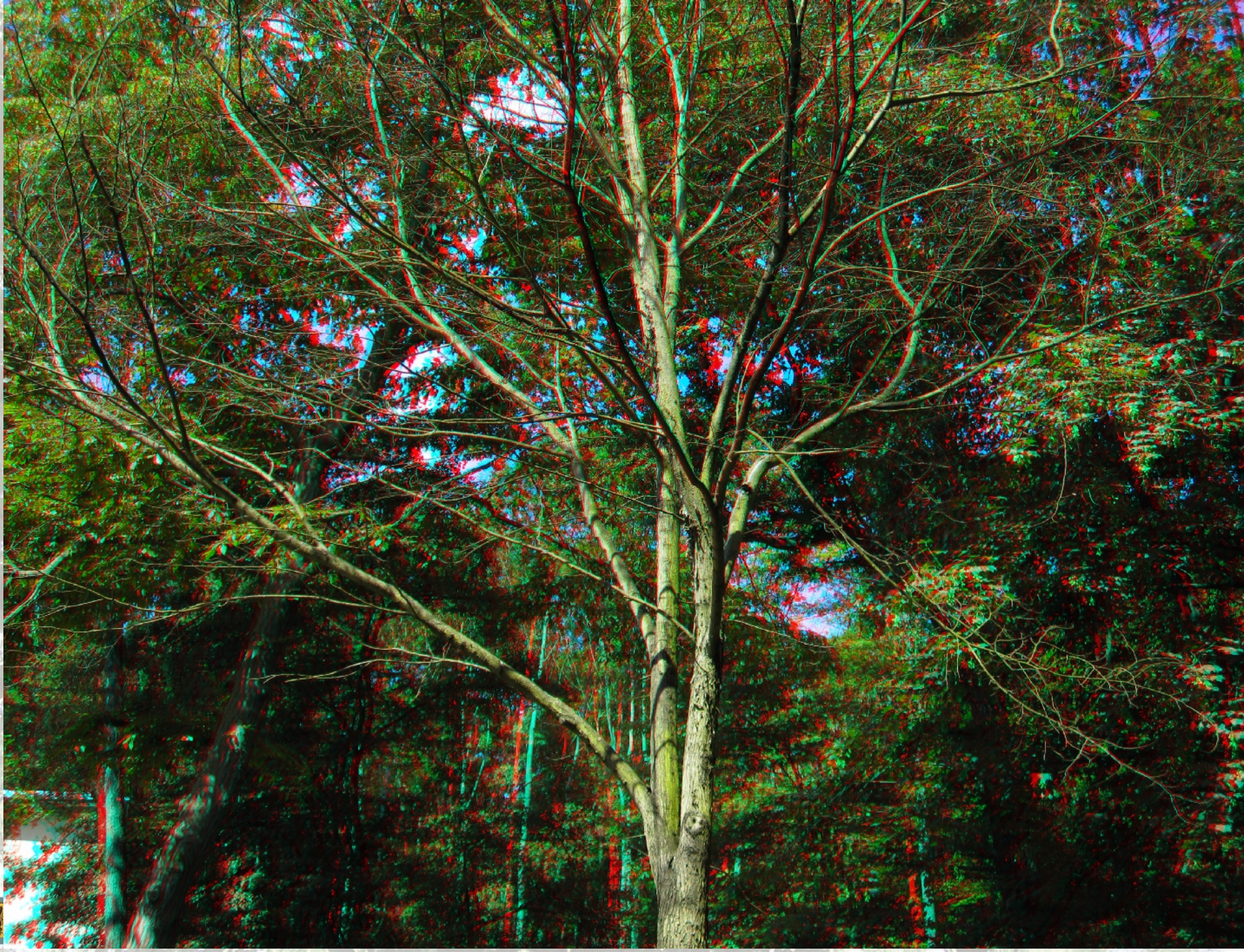


# Leipziger Stadtwald



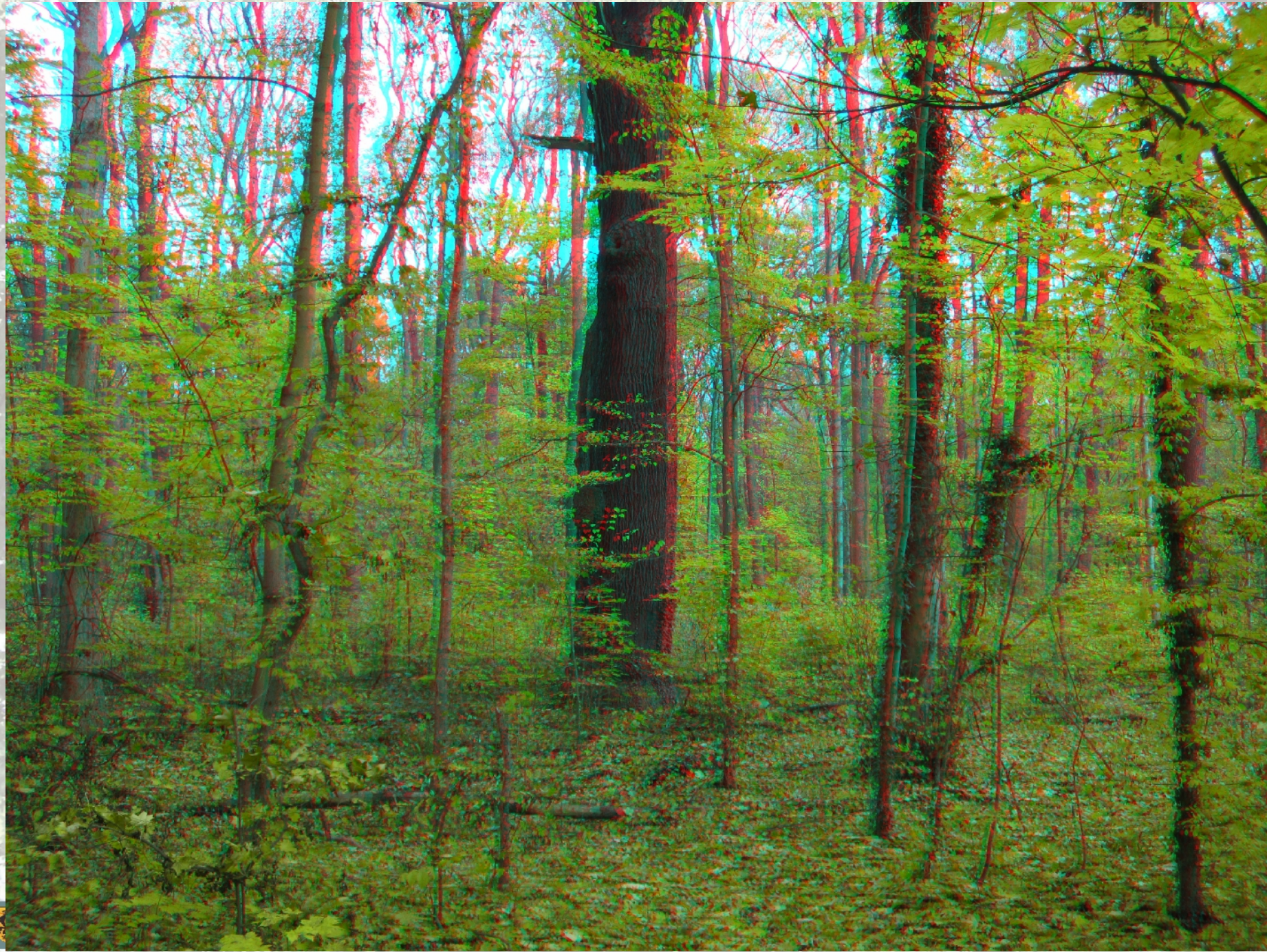


Leipziger Stadtwald





**Leipziger Stadtwald**







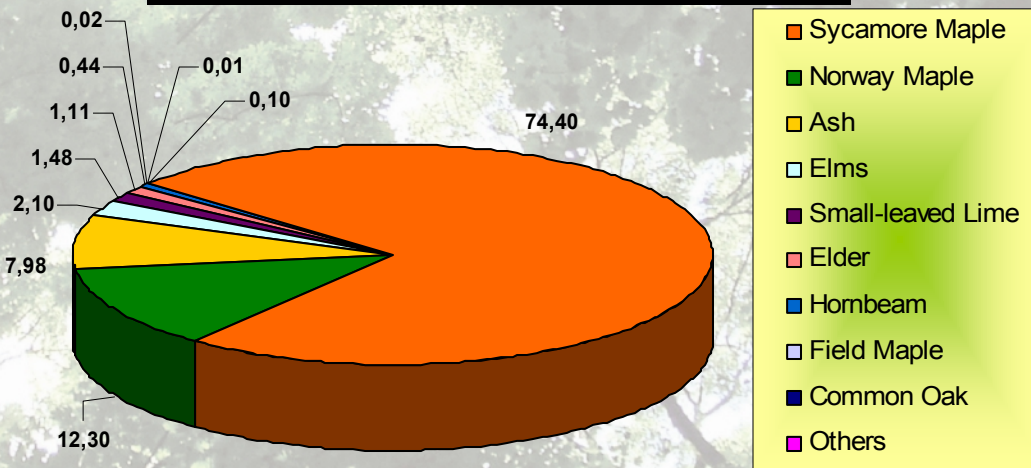






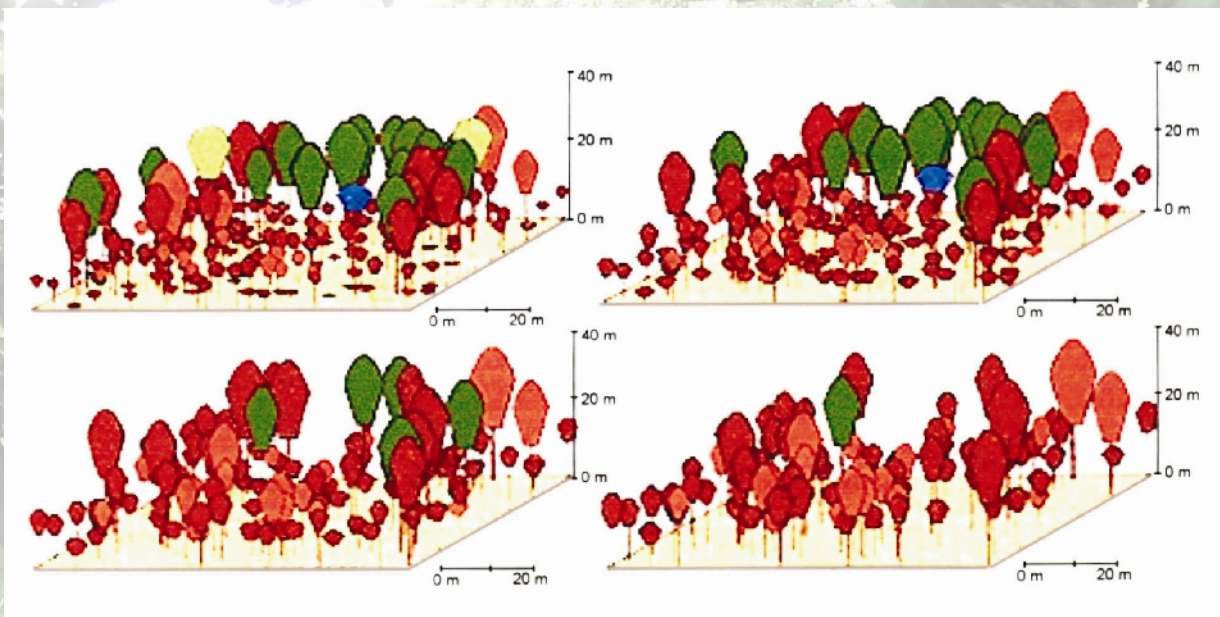
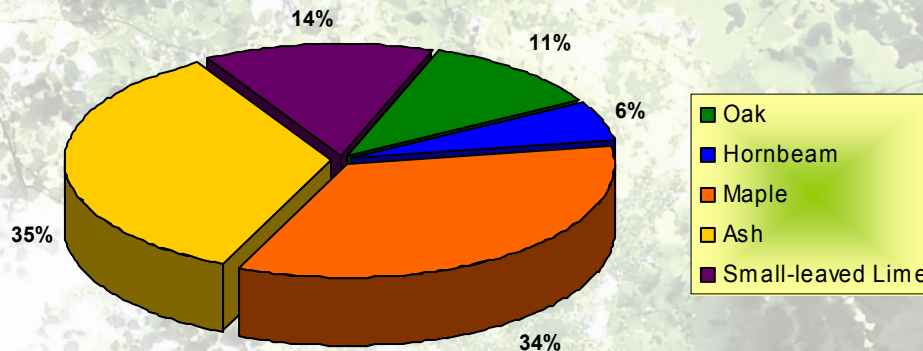
Natural regeneration in the area "Rosental"	
Tree species	Proportion (% of the area)
Sycamore Maple	74,40
Norway Maple	12,30
Ash	7,98
Elms	2,10
Small-leaved Lime	1,48
Elder	1,11
Hornbeam	0,44
Field Maple	0,02
Common Oak	0,01
Others	0,10

**Natural regeneration in the area "Rosental" in (%)**





## Proportion of basal area (%) – compartment No 131a (NSG-Burgae):



### Views of the stand regarding the simulated development of the trial plot in compartment No. 131a (NSG Burgae):

top left: 5 years                      top right: 20 years  
down left: 35 years                      down right: 50 years

Color mapping:    Dark green: Ash    Red: Maple    Orange: Lime



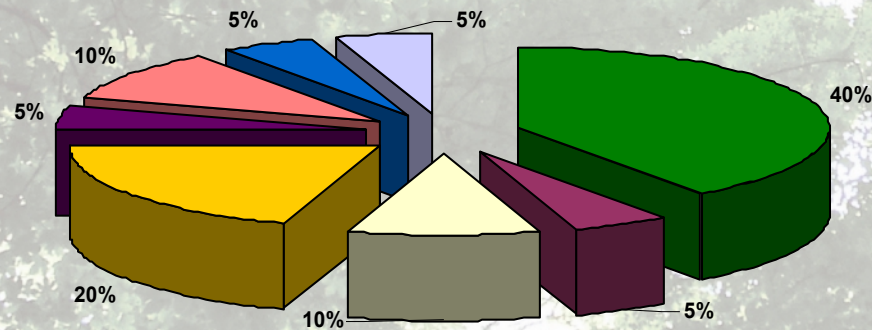


Economie  
+ Ecologie  
+ Recreation  
**= MAXIMAL BENEFIT**



The following ideal average target stand for the hardwood floodplain forest was defined by historical studies, mathematical models and comparisons with other floodplain forests:

Tree species	Prop. (%)
Common Oak ( <i>Quercus robur</i> )	40
Elms ( <i>Ulmus spec.</i> )	5
Hornbeam ( <i>Carpinus betulus</i> )	10
Ash ( <i>Fraxinus excelsior</i> )	20
Sycamore Maple ( <i>Acer pseudoplatanus</i> )	5
Small-leaved Lime ( <i>Tilia cordata</i> )	10
Field Maple ( <i>Acer campestre</i> )	5
Wild Fruit ( <i>Prunus, Malus, Pyrus</i> )	5



■ Common Oak ( <i>Quercus robur</i> )	■ Elms ( <i>Ulmus spec.</i> )
□ Hornbeam ( <i>Carpinus betulus</i> )	■ Ash ( <i>Fraxinus excelsior</i> )
■ Sycamore Maple ( <i>Acer pseudoplatanus</i> )	■ Small-leaved Lime ( <i>Tilia cordata</i> )
■ Field Maple ( <i>Acer campestre</i> )	■ Wild Fruit ( <i>Prunus, Malus, Pyrus</i> )

Rotation age (years)	
Tree species	Age (years)
Common Oak ( <i>Quercus robur</i> )	300
Ash ( <i>Fraxinus excelsior</i> )	160
Small-leaved Lime ( <i>Tilia cordata</i> )	200
Hornbeam ( <i>Carpinus betulus</i> )	140
Field Maple ( <i>Acer campestre</i> )	140
Sycamore Maple ( <i>Acer pseudoplatanus</i> )	140
Elms ( <i>Ulmus spec.</i> )	140
Wild Cherry ( <i>Prunus avium</i> )	140
Black Alder ( <i>Alnus glutinosa</i> )	120
Willow ( <i>Salix spec.</i> )	100
Bird Cherry ( <i>Prunus padus</i> )	80
Crap Apple ( <i>Malus sylvestris</i> )	140
Common Pear ( <i>Pyrus pyraeaster</i> )	140
Rowan ( <i>Sorbus aucuparia</i> )	140
Birch ( <i>Betula pendula</i> )	120
Aspen ( <i>Populus tremula</i> )	120
Black Poplar ( <i>Populus nigra</i> )	120



The aim is a evenly distribution of the age classes among all tree species. Using the target values and the rotation age the annual regeneration area for the most important tree species can be calculated, for example for Common Oak (*Quercus robur*):

Area of Leipzig's Floodplain Forest: 1.700 ha

Rotation age for Common Oak: 300 years

Target value for Common Oak: 40 %

Averaged annual regeneration area = X

$$X = \frac{1.700 \text{ ha} \times 40 \%}{300 \text{ years} \times 100 \%} = 2,27 \text{ ha/year}$$

That means that for a period of a forest management, in fact for ten years about 23 ha regeneration area needs to be planned. The target values and rotation ages were already taken into account in the last forest management for Leipzig's city forest in the Floodplain Forest.



## 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-leaved lime (*tilia cordata*), common beech (*fagus silvatica*)...).



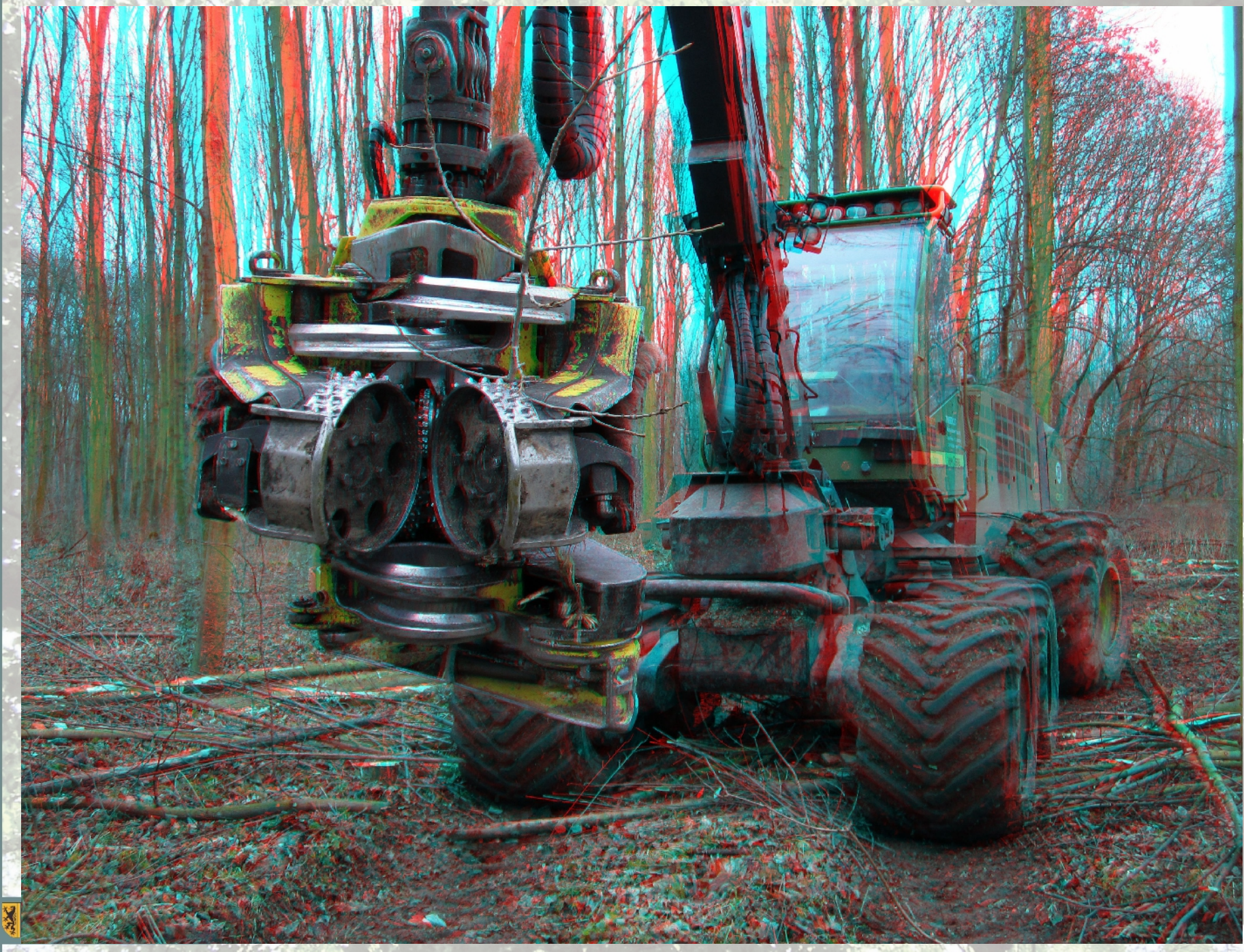
Fig. 10: The result is a multi-layered forest including a great variety of species.





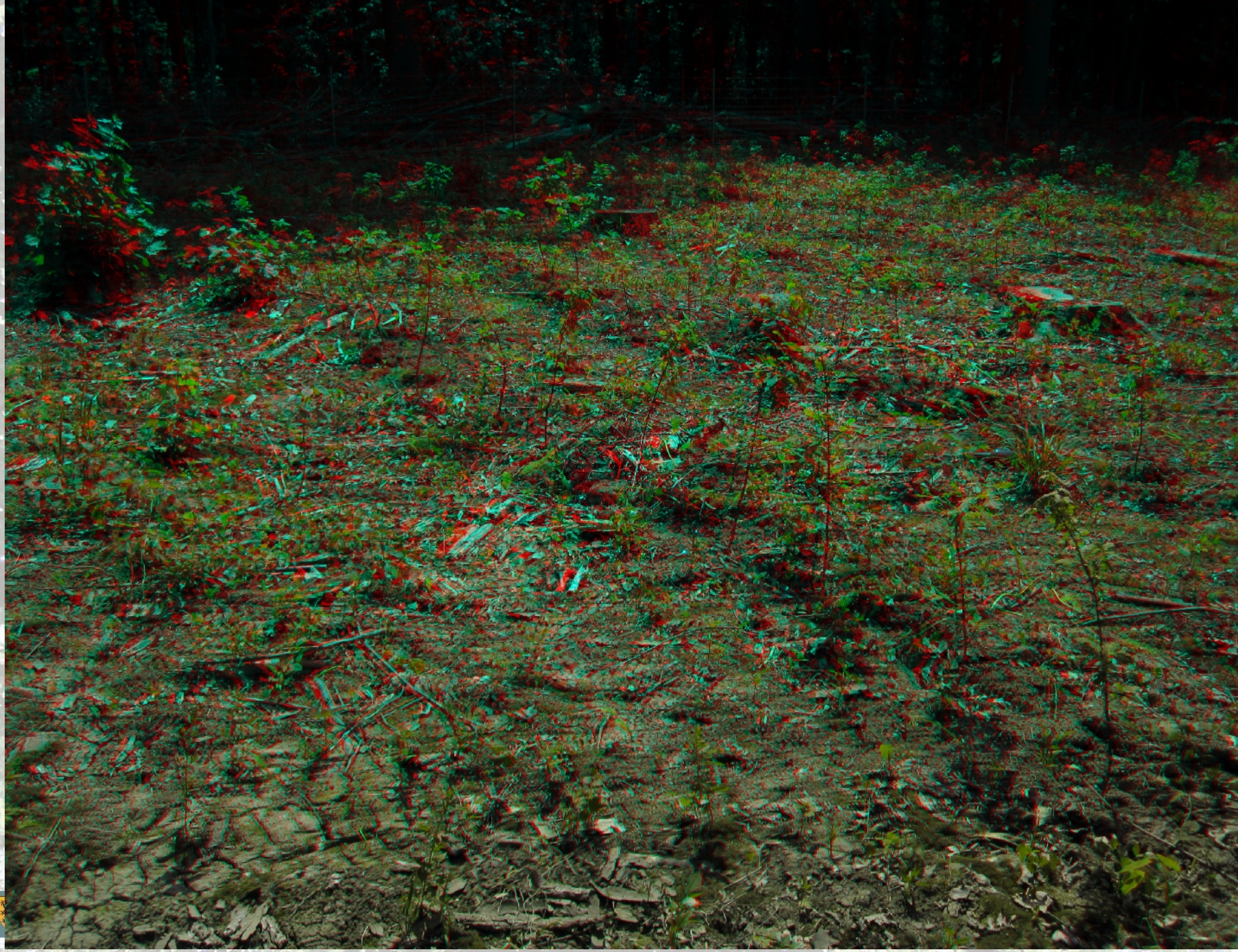


Leipziger Stadtwald





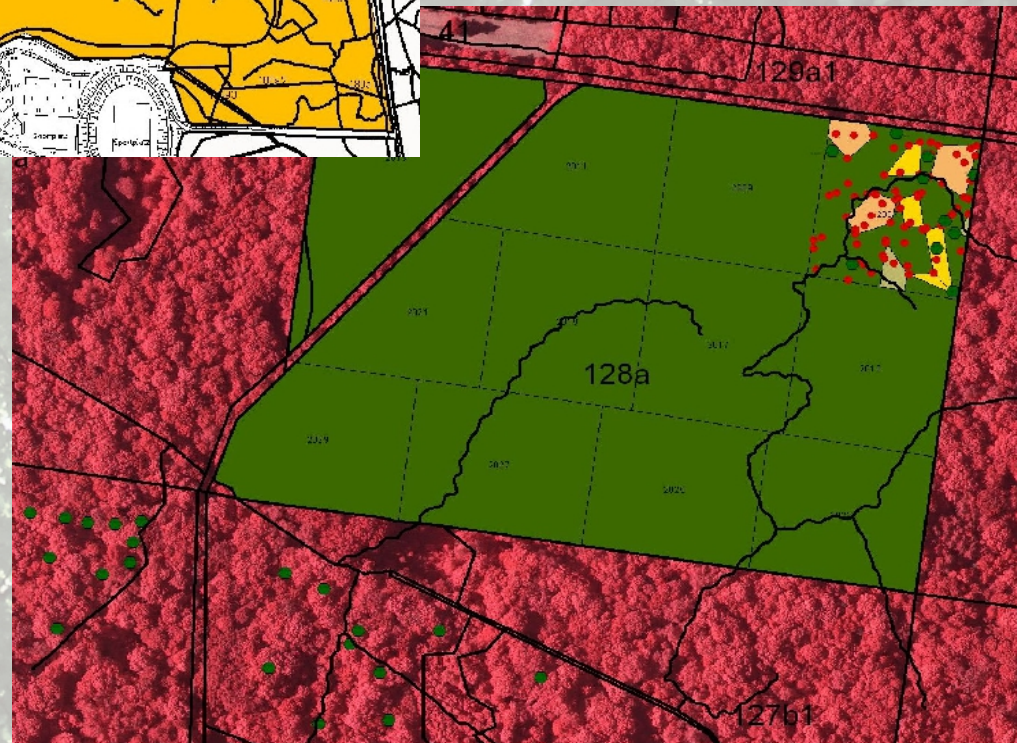
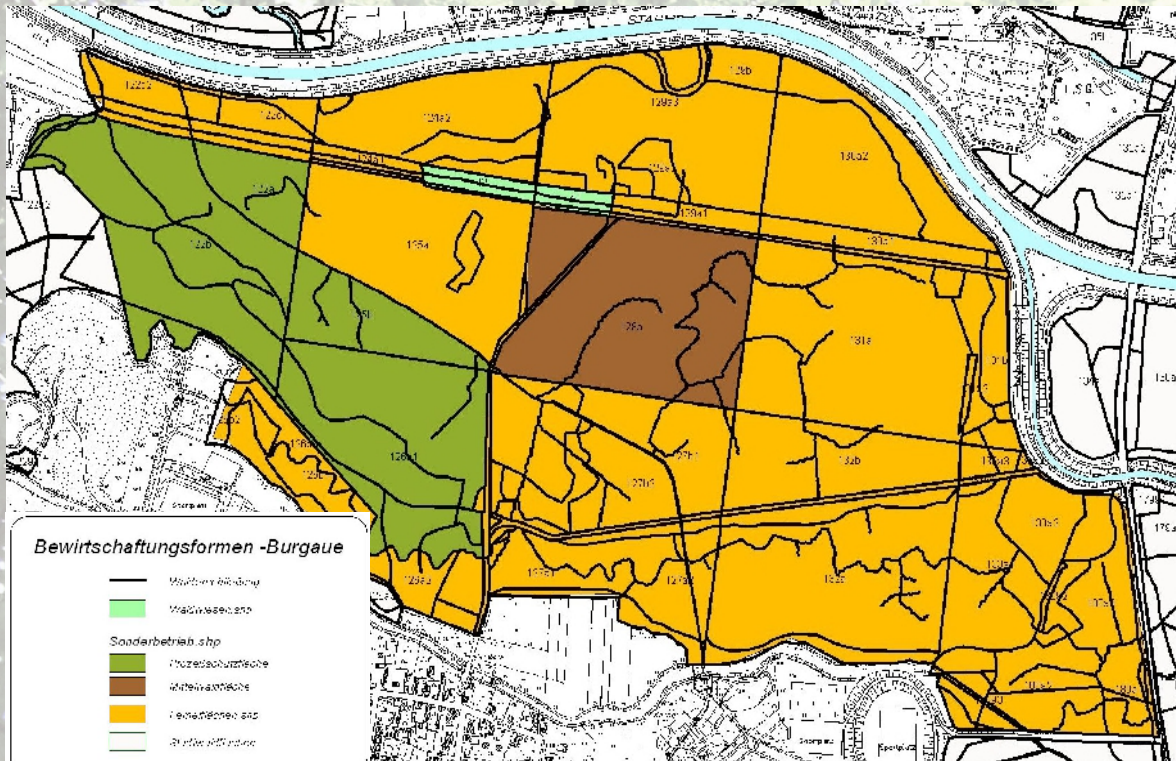
# Leipziger Stadtwald





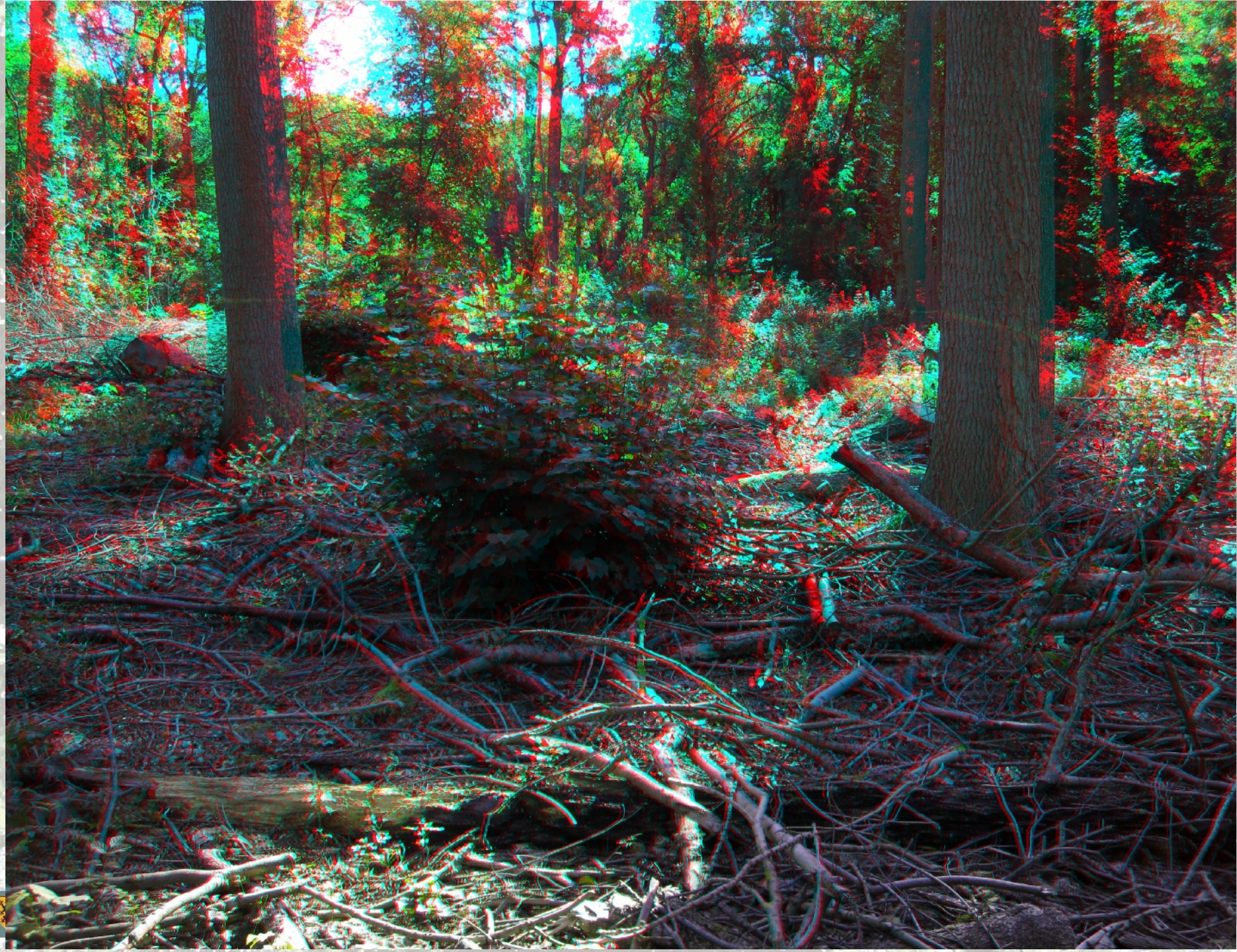








**Leipziger Stadtwald**





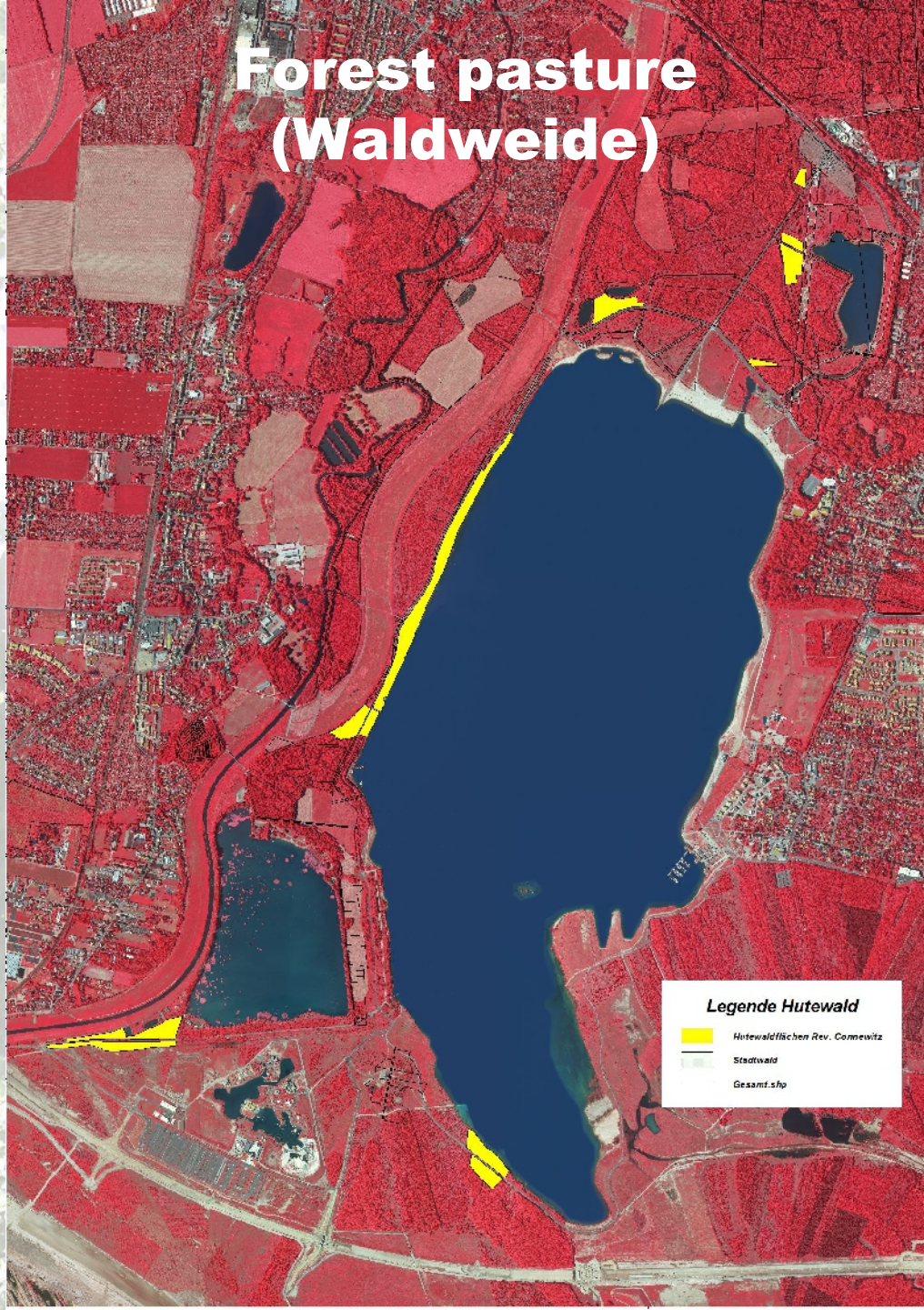








# Forest pasture (Waldweide)



## Legende Hutewald

-  Hutewaldflächen Rev. Cornewitz
-  Stadtwald
-  Gesamt.shp





















# Thank you for your attention!



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City Forest Division