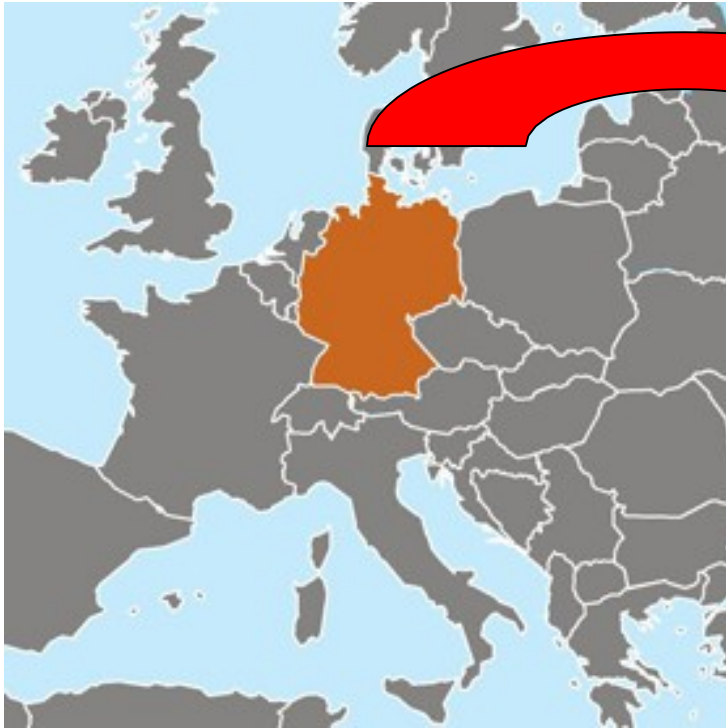


**Applied Period  
Forest Office Johanniskreuz  
State Forest Administration Rheinland-Pfalz,  
Germany**

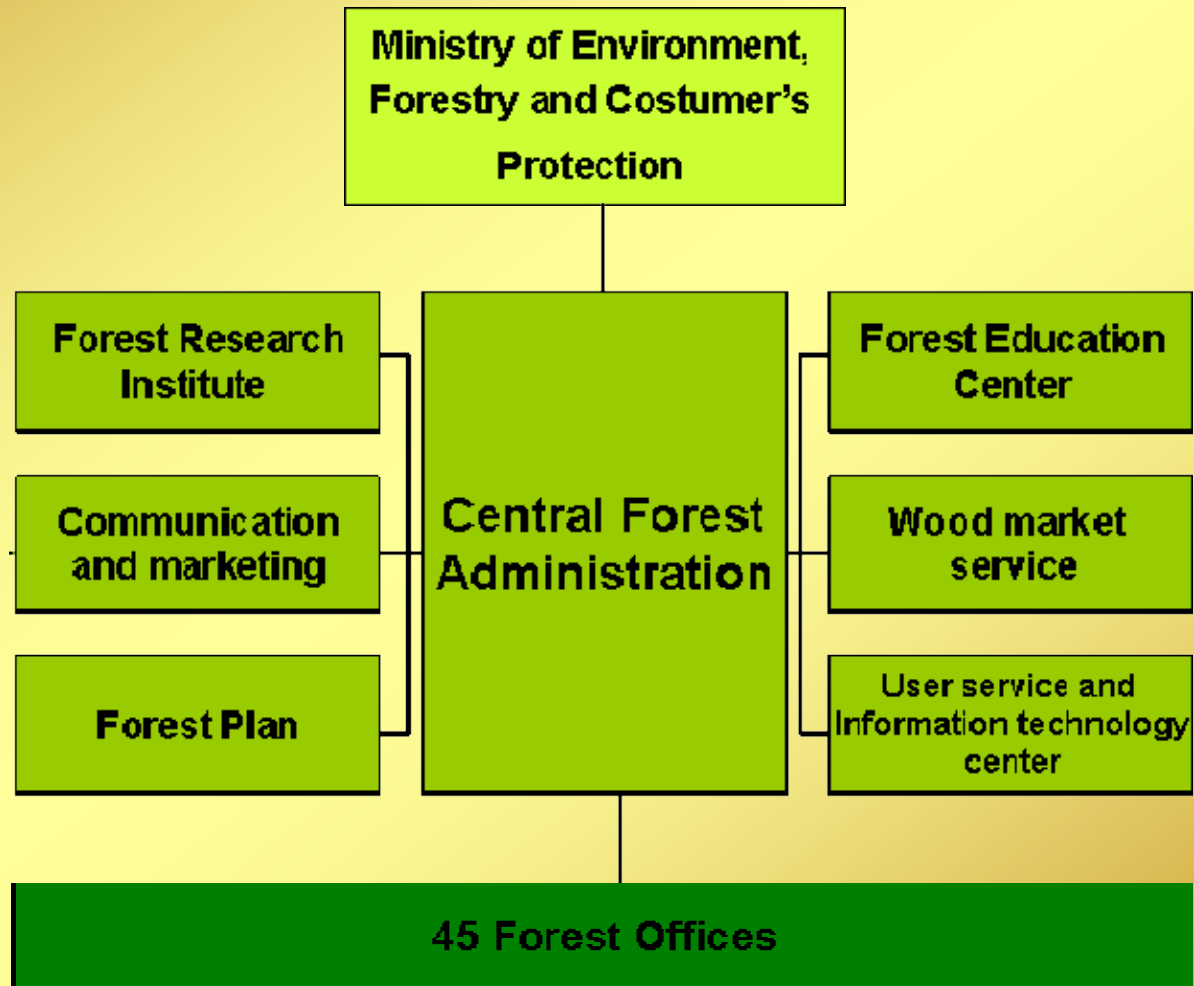
Student: Kelen Bühler Pedroso  
Supervisor (host org.): Burkhard Steckel  
Supervisor (Uni-Freiburg): Heinrich Spiecker



# Rheinland-Pfalz, Germany



# State Forest Administration Rheinland-Pfalz



### Forest and Forestry in Rheinland-Pfalz

<b>Total area</b>	833.000 ha (42% of the area of the State)
<b>Tree species</b>	
European Beech ( <i>Fagus sylvatica</i> )	21%
Oak ( <i>Quercus petraea</i> )	20%
Other broadleaf trees	16%
Norway Spruce ( <i>Picea abies</i> )	22%
Scots Pine ( <i>Pinus sylvestris</i> )	11%
Douglas Fir ( <i>Pseudotsuga menziesii menziesii</i> )	6%
Silver Fir ( <i>Abies alba</i> ) and Larch ( <i>Larix decidua</i> )	4%
<b>Structure of the forest districts</b>	
State forest	24% (percentage of forest area)
Communal Forest	47%
Private ownership	27%
National forest	2%
<b>Wood volume and utilization</b>	
Total volume in Rh-Pf	4.800.000 m <sup>3</sup>
Sawlog	56%
Industrial use	24%
Firewood/ energy sector	20%
<b>Structure of state forest administration</b>	
Forest Offices	45
Districts (State and Communal)	547
employees	1867

# Forest Office Johanniskreuz



# Forest Office Johanniskreuz

Main tasks:

- Forest management (local level)
- Monitoring communal and private forest
- Other services (ex. Environmental education)





## Forest and Forestry - Forest Office Johanniskreuz

<b>Total area</b>	22.377 ha
<b>Tree species</b>	
European Beech ( <i>Fagus sylvatica</i> )	28,5%
Oak ( <i>Quercus petraea</i> )	15,6%
Larch ( <i>Larix decidua</i> / <i>Larix kaempferi</i> )	4,7%
Norway Spruce ( <i>Picea abies</i> )	12,4%
Scots Pine ( <i>Pinus sylvestris</i> )	30,5%
Douglas Fir ( <i>Pseudotsuga menziesii</i> )	6,9%
Silver Fir ( <i>Abies alba</i> ) and Larch ( <i>Larix decidua</i> )	1%
Other species	0,6%
<b>Structure of the Forest Office</b>	
Number of Forest Districts	15
State forest	72% (percentage of forest area)
Communal Forest	17,1%
Private ownership	10,9%
<b>Wood volume and utilization</b>	
Total volume	138.000 m <sup>3</sup> (2007)
Sawlog	50%
Industrial use	32%
Firewood/ energy sector	6 %
veneer	12%

# Site and climate characteristics in the region of the Forest Office Johanniskreuz



Geology	Sandstone (95%)
Soil types	Brown soil, Podsols, Pseudogley
Altitude	215 to 609 m above sea level
Precipitation	700 to 900 mm (360 mm vegetation period)
Temperature (mean)	annual 8,6° C
	vegetation period 15,8° C
Topography	40% slope areas



# Sectors and Leadership at the Forest Office Johanniskreuz

<b>Forest Office Johanniskreuz</b>		
<b>Forest Office manager</b>		
<b>Sectors</b>		
	<b>Objectives</b>	<b>Employees</b>
<b>Sustainability's House</b>	Environmental education	5
<b>Forest Districts</b>	Management of forest areas	14
<b>Office</b>	Administrative issues of the Office	8
<b>Technical sector</b>	Coordination of the technical operations	37
<b>Products sector</b>	Coordination of hunting and forest recreation	2

# AP subjects

- Two main subjects:
  - Silviculture of the main tree species
  - Wood grading and wood sale

\*participation in other activities

# Silvicultural background

- Multifunctional forests
- Management close to nature
  - Forest development divided into 4 phases:
    - \*Establishment Phase
    - \*Qualification phase
    - \*Dimensioning phase
    - \*Maturity phase



# Establishment Phase



- objective: regenerate the stand with the desired tree species



- naturally or artificially (sowing or planting)
- Artificial regeneration – good genetic quality
- Protection of regeneration (against wild animals)

# Qualification Phase

- Beginning – established trees (no more competition with concurrence flora)
- Some vital individuals are aggressive

# Qualification Phase

- Objectives:
  - reduce influence of negative vital individuals
  - achieve a sufficient number of possible future crop trees
- Bending, ring barking, cutting



# Dimensioning Phase

- Objective: choose future crop trees and support their development
- selection is based on vitality, quality, number and distribution of individuals
- 8-10 m free of living branches

# Maturity Phase

- support growing of future crop trees
- First trees achieve desired dimension – regeneration starts
- No clear cut
- Mosaic of species in different ages
- Stand stability



## Managed tree species in the palatinate region

SPECIES	% in the area	Demand Light/shade	Establishment Regular Operation	Qualification	Dimensioning Age/number of fct	Maturity rotation time
<b>European Beech<sup>1</sup></b> ( <i>Fagus sylvatica</i> )	28,5%	Shade tolerant	Natural regeneration	Removal dominant individuals	35-40 years 40-80 trees/ha	120-140
<b>Douglas Fir<sup>2</sup></b> ( <i>Pseudotsuga menziesii</i> )	6,9%	Semi shade tolerant	Natural Regeneration/ planting	Few	25-30 years 80 trees/ha	80-100
<b>Larch</b> ( <i>Larix decidua</i> <sup>1</sup> / <i>Larix kaempferi</i> <sup>3</sup> )	4,7%	Light demanding	Natural Regeneration/ planting	Few	20 years 80 trees/ha	100-140
<b>Norway Spruce<sup>1</sup></b> ( <i>Picea abies</i> )	12,4%	Semi shade tolerant	Natural Regeneration/ planting	Few	25-30 years 120 trees/ha	100
<b>Oak<sup>1</sup></b> ( <i>Quercus petraea</i> / <i>Quercus robur</i> )	15,6%	Light demanding	Sowing/ planting/ natural regeneration*	150-200 options fct/ha	25-30 years 80 trees/ha	200-300
<b>Scots Pine<sup>1</sup></b> ( <i>Pinus sylvestris</i> )	30,5%	Light demanding	Natural regeneration	Removal dominant individuals	20 years 80-120 trees/ha	100-130
<b>Silver Fir<sup>1</sup></b> ( <i>Abies alba</i> )	1%	Shade tolerant	Natural regeneration*	Few	35-40 years 120 trees/ha	100-120

\*Protection against wild animals by fences required

**1** Native species; **2** Species from North America; **3** Species from Japan

fct– future crop trees







# Wood sale

- Specific wishes according to the customers will
- 3 forms of negotiation:
  - contracts
  - bid for logs on the logging place
  - local customers - energywood



# Wood grading

- A (Veneer; Barrel wood);
- B (normal quality);
- C (middle quality);
- D (poor quality)





# Analysis of new prices for beech wood

- Company – buys large amounts of wood
- Old prices – grading and dimension
- new prices – only dimension
- Facilitate the negotiation



# Results

## Comparison - new x old prices

Los	fm	B			C				D			B/C
		4	5	6	3b	4	5	6	4	5	6	3b
1	50,61					28,17	8,01	7,96	3,23	0,8	2,44	
2	9,01					7,38	1,63					
3	40,08	4,76				15,41	3,15					16,76
4	65,16					29,2	15,98	9,52	3,81	6,65		
5	121,47	4,55	0,9		2,74	36,74	21,35		7,15	1,71		46,33
6	95,15				2,81	63,54	18,78	7,36	1,92			0,74
7	112,4				8,94	48,44	30,14	23,07				1,81
8	6						2,89					3,11
9	154,66	4,57	3,91	1,19	1,74	49,04	27	9,52	8,78	14,19	9,31	25,41
10	117,77					54,51	18,78	9,06	2,43			32,99
Summe	772,31	13,88	4,81	1,19	16,23	332,43	147,71	66,49	27,32	23,35	11,75	127,15
	Preis	85	100	115	50	60	64	69	50	52	55	60
	€	1179,8	481	136,85	811,5	19945,8	9453,44	4587,81	1366	1214,2	646,25	7629

L	$\sum$ fm	$\sum$ €	€/fm	Neue Preise	$\sum$ €	Differenz
3b B/C-C	143,38	8440,50	58,87	57	8172,66	-267,84
4 B-C-D	373,63	22491,60	60,20	60	22417,8	-73,80
5 B-C-D	175,87	11148,64	63,39	65	11431,55	282,91
6 B-C-D	79,43	5370,91	67,62	69	5480,67	109,76
$\sum$		47451,65			47502,68	51,03

fm = m<sup>3</sup>

neue Preise = new prices

# Analysis of Oak logs sale on poorer quality on the logging place

- Most valuable wood
- contracts
- Bid = costs of transport and on the logging place
- Bid x contract (higher profit?)



- Grading of the logs before bid
- Calculation of minimum contract prices
- Comparison contract prices and highest bids



# Results

- 77% logs graded as veneer bought by veneer customers;
- 69% barrel logs bought by barrel customers;
- 35% saw logs bought by sawmills;
- spiral grain accepted by barrel wood costumers;
- Logs of fourth class graded as barrel log or sawlog of B quality have been bought for higher prices than in contract's negotiation
- Prices of barrel wood on logging place are higher than in contract's negotiation
- Cut logs, the so called Zweitlaenge, that are in part barrel logs or a longer sawlog have been bought for better prices than in a contract's negotiation

# Results

- additional costs on the logging place (2005/2006) is 47,52 €/m<sup>3</sup>
- additional profit gained on the negotiation on the logging place is 166,43 €/m<sup>3</sup> (costs taken away)







# Activities

- Silviculture related
- Other activities

# Visit to Oak regeneration areas

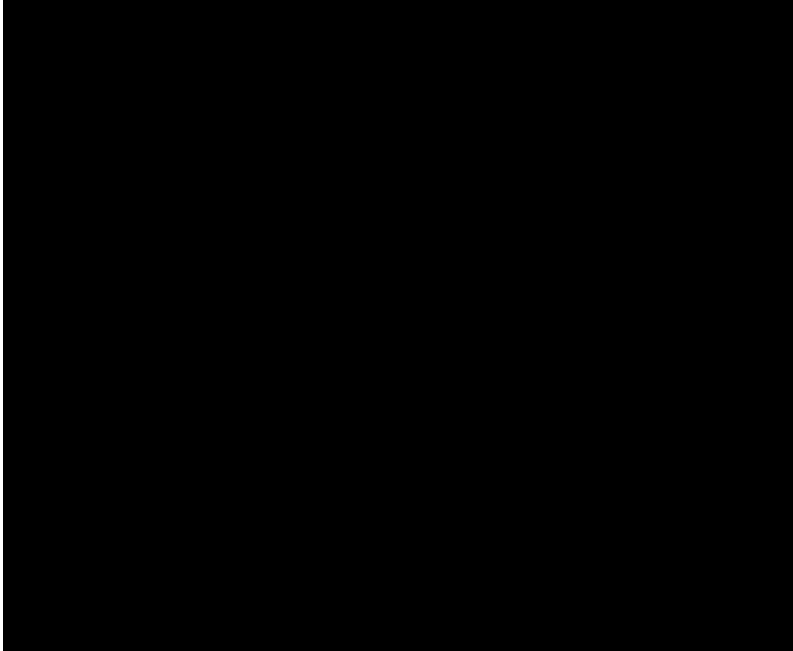
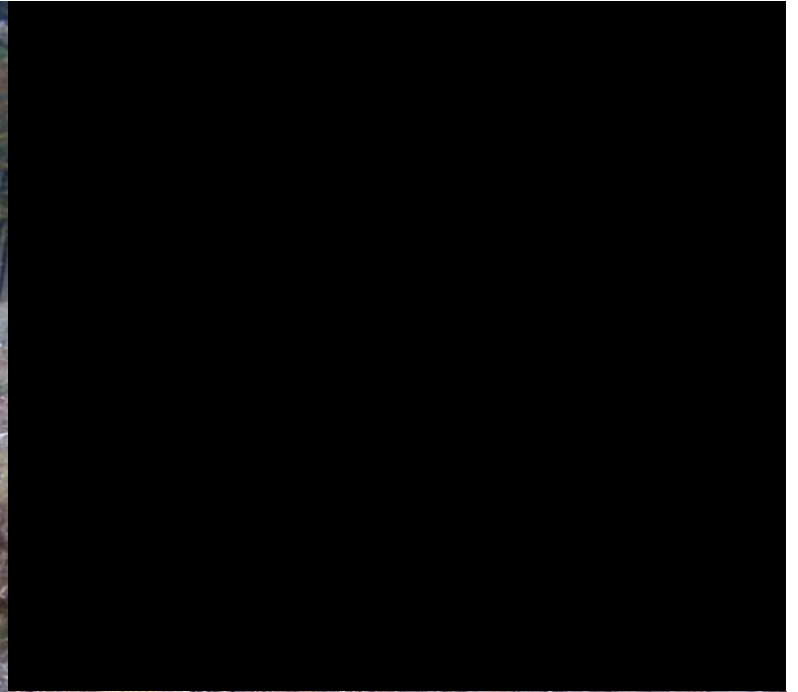
- Visit of Oak nests and sowing areas
  - Oak nests - 21 seedlings (1 m<sup>2</sup> - 15x15 cm).
  - Sowing - lines (2mx5cm)
  - \*Acorns 400 kg/ha









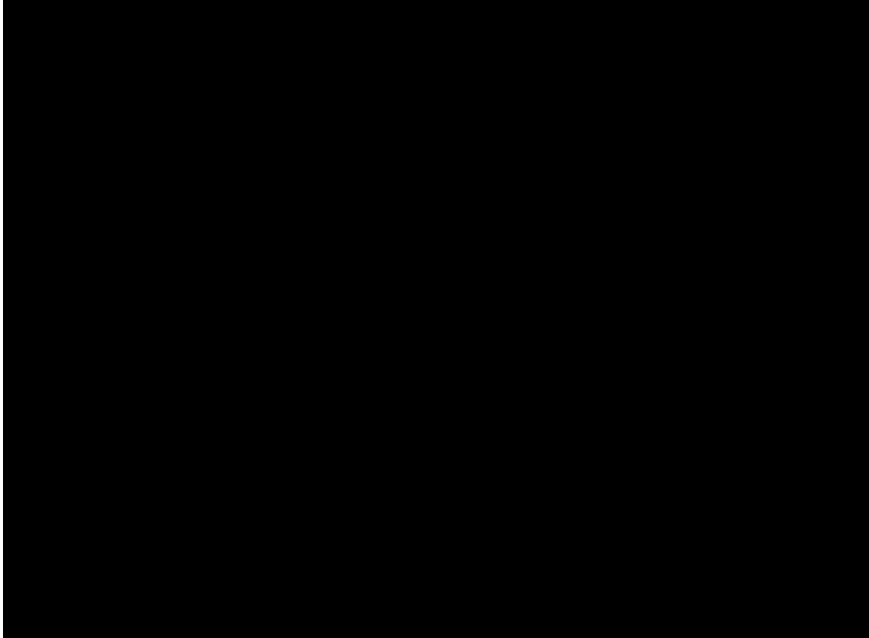
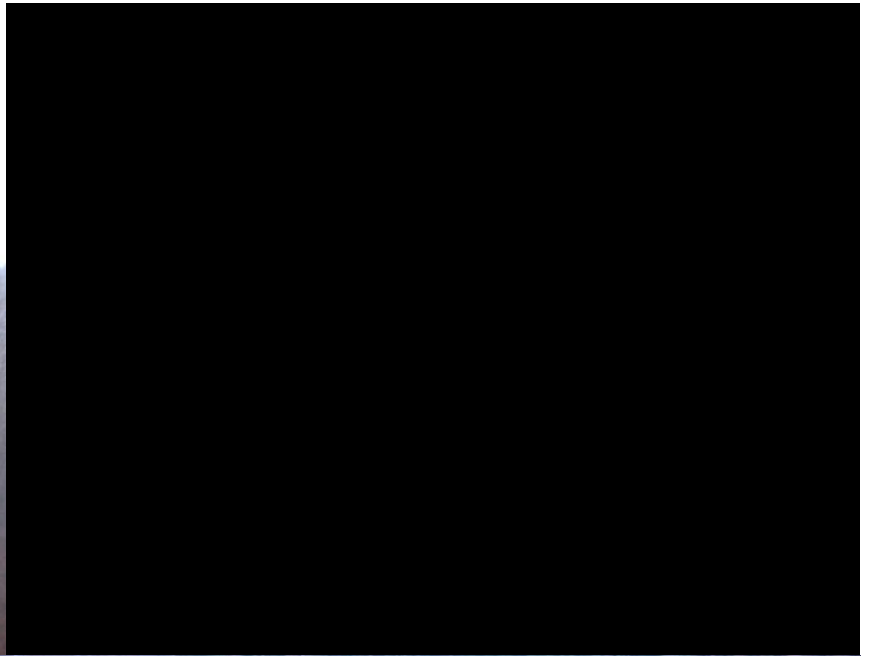




# Marking of Klumpen

- artificial regeneration by planting (Klumpen – groups of seedlings)
- marked with a colored piece of wood (Pfaehlen)







## Tree's shoot protection

- Silver Fir (adhesive tape) - against deers and roebucks









# Marking of future crop trees and skidding lines

- Fct - white tape
- Trees to be cut - red spray
- Skidding lines









# Visit to a parquet fabric

- Oak 5000 m<sup>3</sup>/year
- 130.000 m<sup>2</sup> of parquet per year







# Hunting

- Wild animals - bark, shoot damages; diseases; agricultural damages
- Control of wild animals population
- Hobby
- Hunter's license; area to hunt
- Foresters – obligation
- Organization of huntings











# Presentation about Brazilian Ecosystems





# Visit to the Office of the Pfälzerwald Natural Park

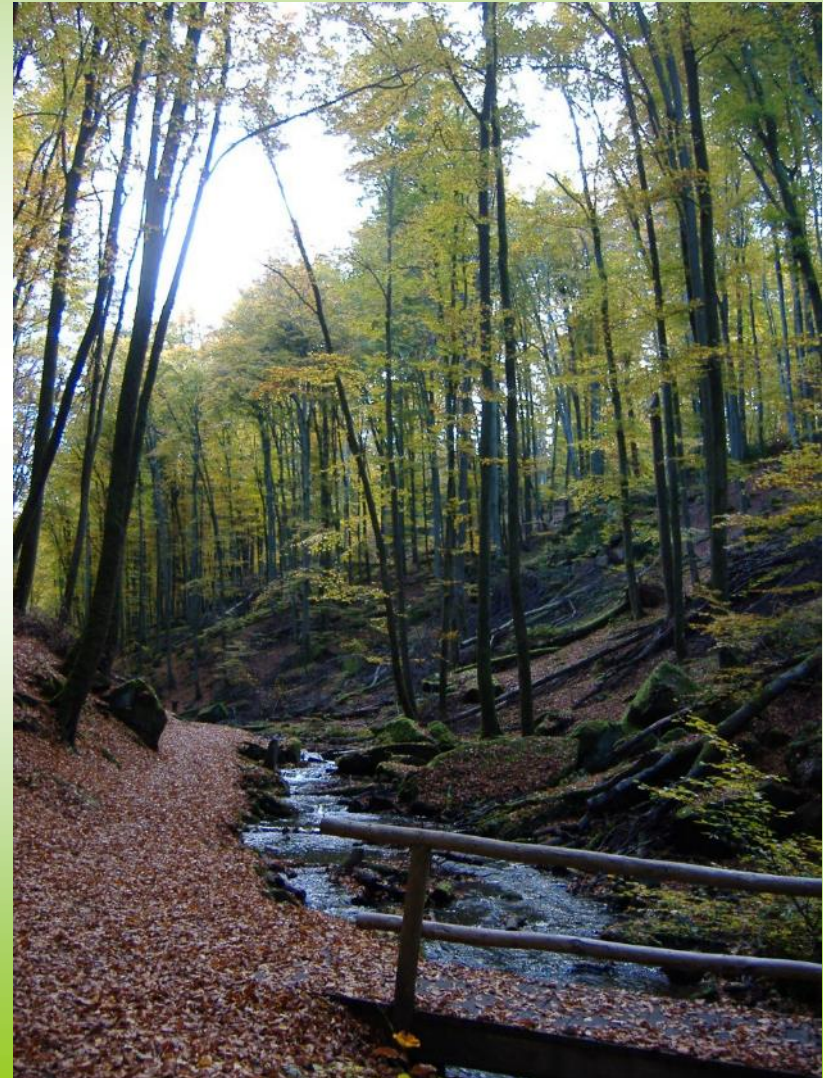
- area 179.000 ha
- Biosphere Reserve (cooperation with France)

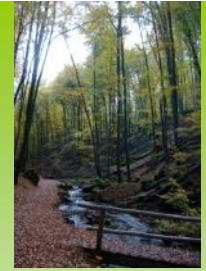


Source: <http://www.naturschutz-pfaelzerwald.de>

# Visit to Karlstal nature reserve

- nature reserve; cultural monument; recreation area
- conflicts





# Meetings

- regional meeting of Forest Offices of the palatinate region;
- two internal meetings of the Forest Office Johanniskreuz;
- meeting of the department of wood sale;
- meeting of the technical sector of the Forest Office;
- meeting about the financial plan for 2008.



# Sale of Branches for Christmas decoration

- Nobel Fir





# Sale of Beech and Oak logs





## Literature

- Jean-Denis Godet. **Baeume und Straeucher**. Arboris: Bern, 1987.
- Hannes Mayer. **Waldbau: auf soziolog. –oekolog. Grundlage**. Stuttgart, New York: Fischer, 1977.
- Ministerium für Umwelt, Forsten und Verbraucherschutz. Aktuelle waldbauliche Richtlinien und Hinweise; Nr. 1/93 (**Ziele und Grundsätze einer ökologischen Waldentwicklung in Rheinland-Pfalz**).
- Ministerium für Umwelt, Forsten und Verbraucherschutz. Aktuelle waldbauliche Richtlinien und Hinweise; Nr. 2/93 i.d.F. vom 20.August 1993; Az.: 10524 – 5001. **Zielstärkennutzung**.
- Ministerium fuer Umwelt und Forsten Rheinland-Pfalz, Landesamt fuer Umweltschutz und Gewerbaufsicht Rheinland-Pfalz. **Planung Vernetzer Biotopsysteme – Bereich Landkreis Suedwestpfalz und Kreisfreie Staedte Zweibruecken und Pirmasens**. Oppenheim, 1997.
- Ministerium für Umwelt, Forsten und Verbraucherschutz. Aktuelle waldbauliche Richtlinien und Hinweise; Nr. 8/2000 i.d.F. vom 1.Dezember 2000; Az.: 10524 – 5001. **Hinweise zur Wurzelentwicklung von Laubbaumpflanzen bei unterschiedlichen Pflanzverfahren**.
- Ministerium für Umwelt, Forsten und Verbraucherschutz Aktuelle Richtlinien und Hinweise; Nr. 7 / 2003 i.d.F. vom 3. September 2003; Az.: 10524 – 5001 / 5335. **Richtlinie zum waldbaulichen Handeln in der Qualifizierungsphase**.
- Ministerium für Umwelt, Forsten und Verbraucherschutz Aktuelle waldbauliche Richtlinien und Hinweise; Nr. 4/2003 i.d.F. vom 11.02.03; Az.: 10524 – 5001. **Z-Baum-orientierte Pflegeeingriffe in der Dimensionierungsphase**.
- Ministerium für Umwelt, Forsten und Verbraucherschutz. Aktuelle Richtlinien und Hinweise; Nr. 5/04 i.d.F. vom 07. September 2004; Az.: 10524-5001. **Richtlinie zu den waldbaulichen Maßnahmen in der Etablierungsphase**.
- Ministerium für Umwelt, Forsten und Verbraucherschutz Aktuelle waldbauliche Richtlinien und Hinweise; Nr. 11/2005 i.d.F. vom 03.02.05; Az.: 10524 – 5001. **Richtlinie für die Durchführung von Wertästungen**.
- Ministerium für Umwelt, Forsten und Verbraucherschutz. **Geschäftsbericht 2006 – Rheinland-Pfalz**.



## Evaluation of the Forest Office Johanniskreuz (State Forest Administration Rheinland-Pfalz)

### Strengths

- multifunctionality of forests;
- management close to nature;
- consideration of growth rates in the exploitation plan;
- good planning and controlling of forest operations;
- high professional quality;
- high motivation;
- high productivity;
- support of local enterprises.





## Evaluation of the Forest Office Johanniskreuz (State Forest Administration Rheinland-Pfalz)

### **Weaknesses**

- new organizational structure (reduced number of employees; no substitution for employees; shared responsibilities; low contact between office manager and district managers);
- mixture of non native species;
- Oak exploitation rates;
- genetic variability;
- small area on other succession phases.

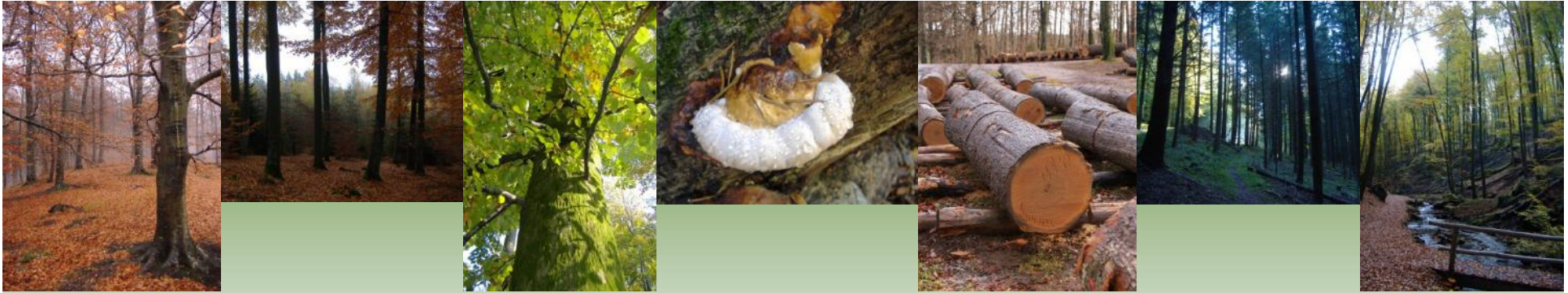


## Evaluation of the Forest Office Johanniskreuz (State Forest Administration Rheinland-Pfalz)

### **Opportunities**

- energy wood;
- Christmas trees;
- Review of the new organizational structure.





## Evaluation of the Forest Office Johanniskreuz (State Forest Administration Rheinland-Pfalz)

### Threats

- new organizational structure;
- Oak exploitation rates;
- small area in other succession phases;
- political weakness.

## Evaluation of the Forest Office Johanniskreuz (State Forest Administration Rheinland-Pfalz)

<b>Strengths</b>	<ul style="list-style-type: none"> <li>- multifunctionality of forests;</li> <li>- management close to nature;</li> <li>- consideration of growth rates in the exploitation plan;</li> <li>- good planning and controlling of forest operations;</li> <li>- high professional quality;</li> <li>- high motivation;</li> <li>- high productivity;</li> <li>- support of local enterprises.</li> </ul>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>- new organizational structure (reduced number of employees; no substitution for employees; shared responsibilities; low contact between office manager and district managers; distance between office and customers);</li> <li>- mixture of non native species;</li> <li>- Oak exploitation rates;</li> <li>- genetic variability;</li> <li>- small area on other succession phases.</li> </ul>
<b>Opportunities</b>	<ul style="list-style-type: none"> <li>- energy wood;</li> <li>- Christmas trees;</li> <li>- review of the new organizational structure.</li> </ul>
<b>Threats</b>	<ul style="list-style-type: none"> <li>- new organizational structure;</li> <li>- Oak exploitation rates;</li> <li>- non native species mixture;</li> <li>- small area in other succession phases;</li> <li>- political weakness.</li> </ul>



