

# **The River Restoration Work at the River Petersbach**

## **A small sized River in the Urban Area of Vienna; Austria**

Gerda Holzapfel, Hans Peter Rauch, Gernot Pfannhauser, Philipp Weihs

Institute of Soil Bioengineering and Landscape Construction and Institute of Meteorology,  
University of Natural Resources and Life Science, 1190 Vienna, Austria

Ingenieurbüro Neukirchen Ziviltechniker GmbH, Vienna, Austria

Contact:

E-mail: [gerda.holzapfel@boku.ac.at](mailto:gerda.holzapfel@boku.ac.at)

Phone: +43 1 47654 7315

PROJECT AREA

CONSTRUCTION WORKS

MONITORING



## PROJECT AREA



Source: SW of Vienna

Mouth: Maria Lanzendorf /Schwechat

Length: 16km

Catchment: 11km<sup>2</sup>

MQ = 0,05m<sup>3</sup>/s

HQ30 = 12,2m<sup>3</sup>/s



(Source: wien.gv.at)

## PROJECT AREA



**AREA 1 (2001/2002)**  
**179 m**

**AREA 2 (2012)**  
**189 m**



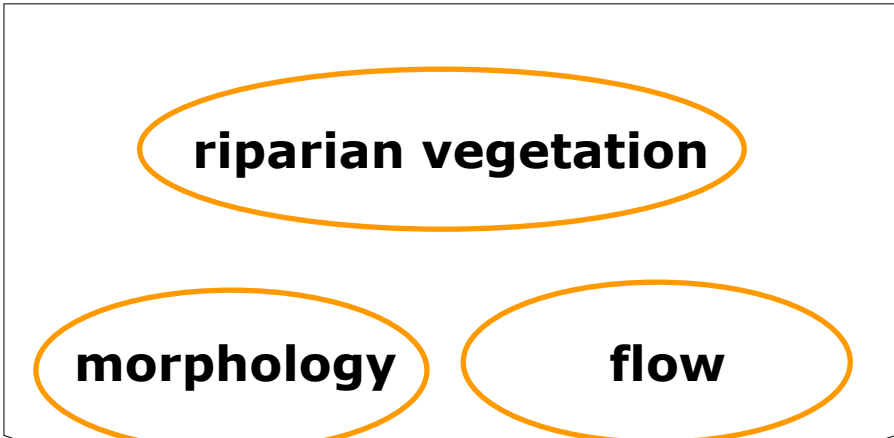
## PROJECT AREA



(Source: wien.gv.at, 09.08.2013)

# OBJECTIVES

**interaction**



**objectives**

- **flood protection**
- **habitat for animal and plants**
- **recreation areas**




## TECHNIQUE

# SOIL BIOENGINEERING

## Soil Bioengineering

### TECHNIQUE

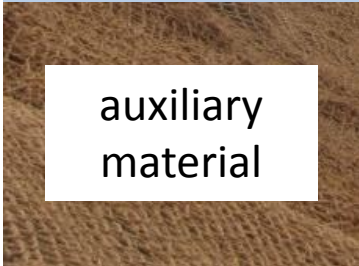
### MATERIAL



dead  
material



living  
plants



auxiliary  
material

# SOIL BIOENGINEERING



# Soil Bioengineering

## TECHNIQUE

## MATERIAL

dead  
material

living  
plants

auxiliary  
material

## APPLICATION

slopes and  
gullys

above the  
timberline

river and  
riparian areas



# SOIL BIOENGINEERING



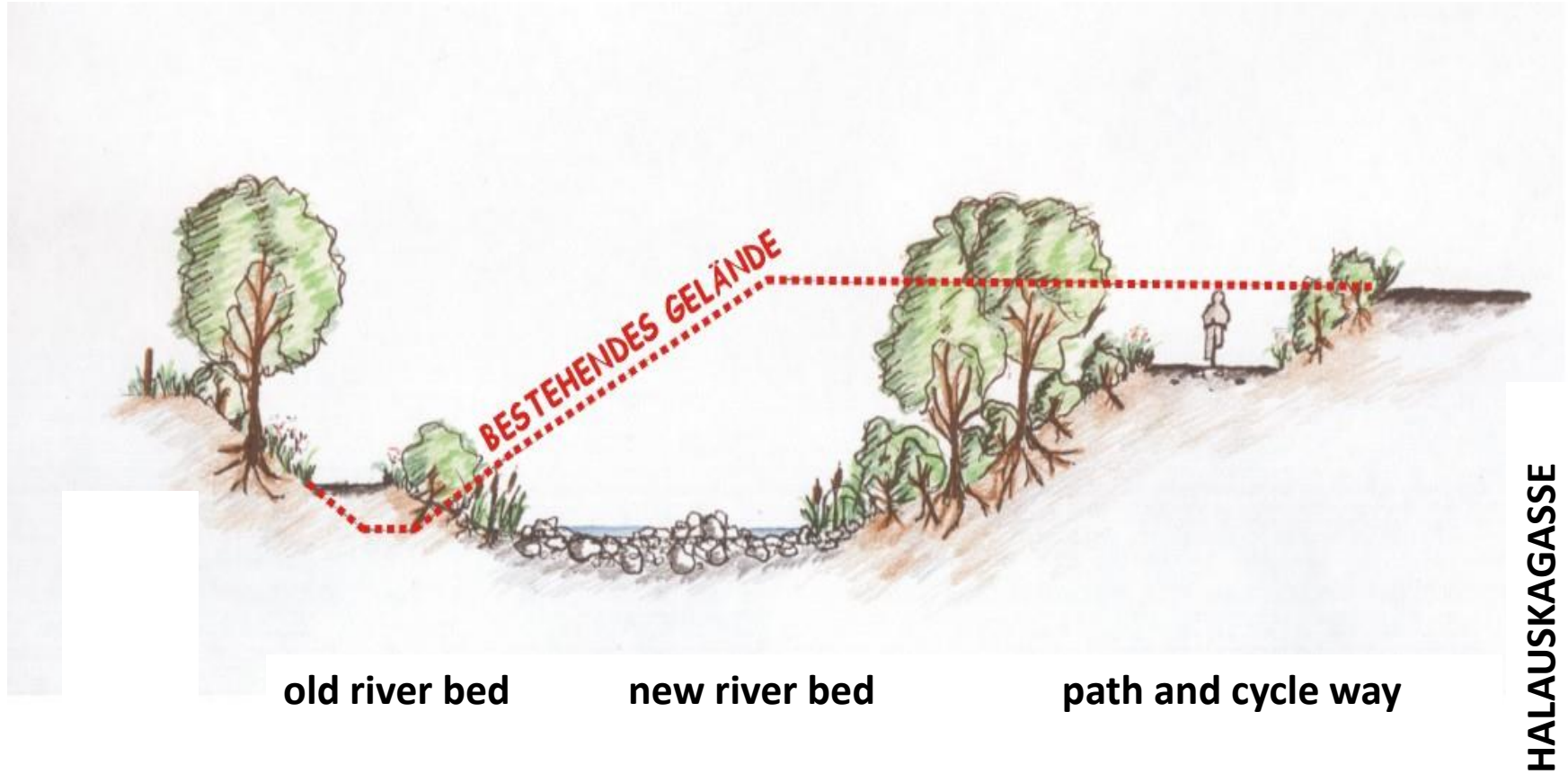
# AREA 1

2000





## AREA 1







2001



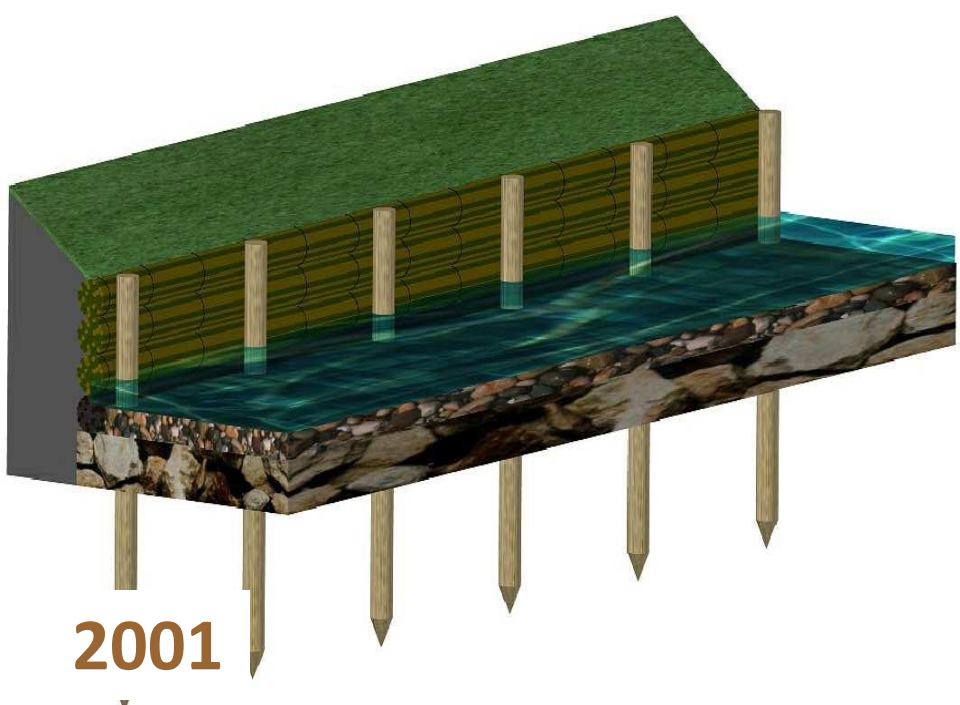




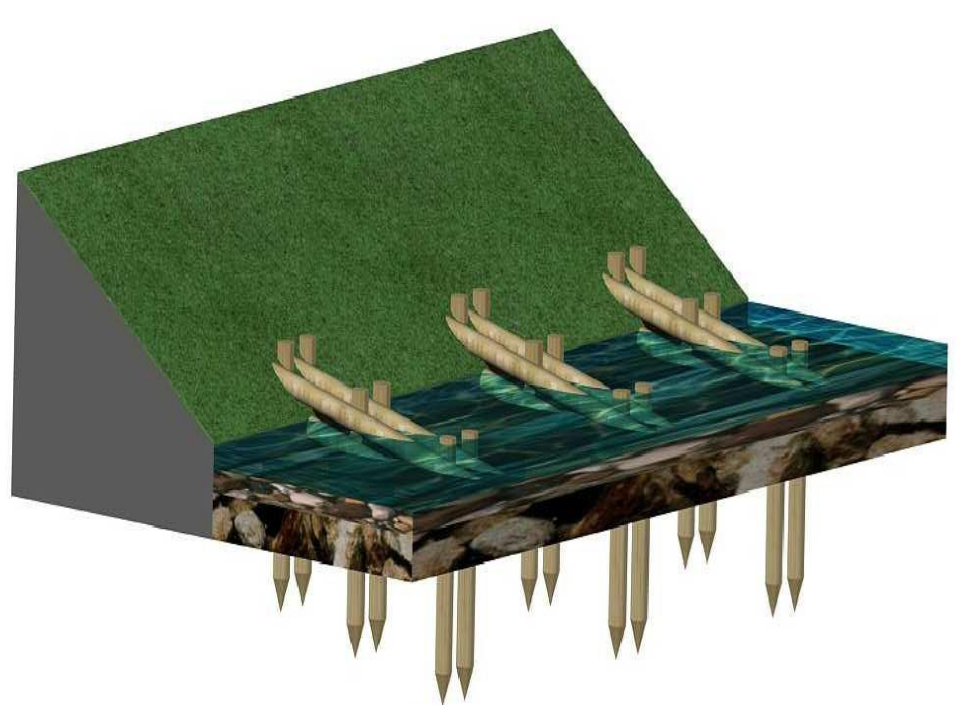
FASCINE WALL



FASCINE GROYNES



2001



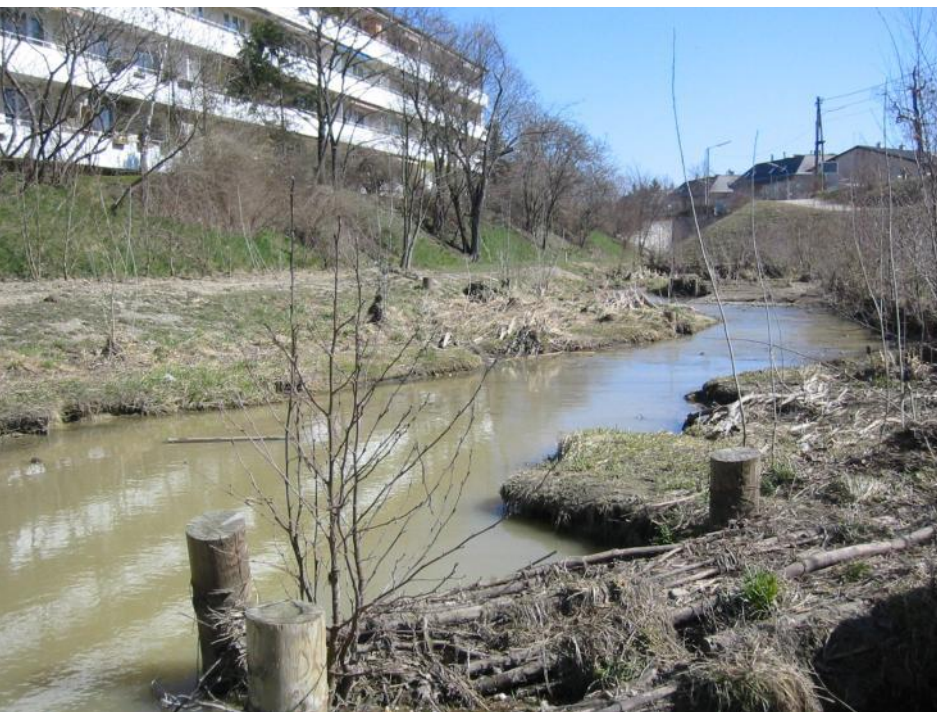


## AREA 1



2001





**2002 – after 1 year**



## AREA 1



2002





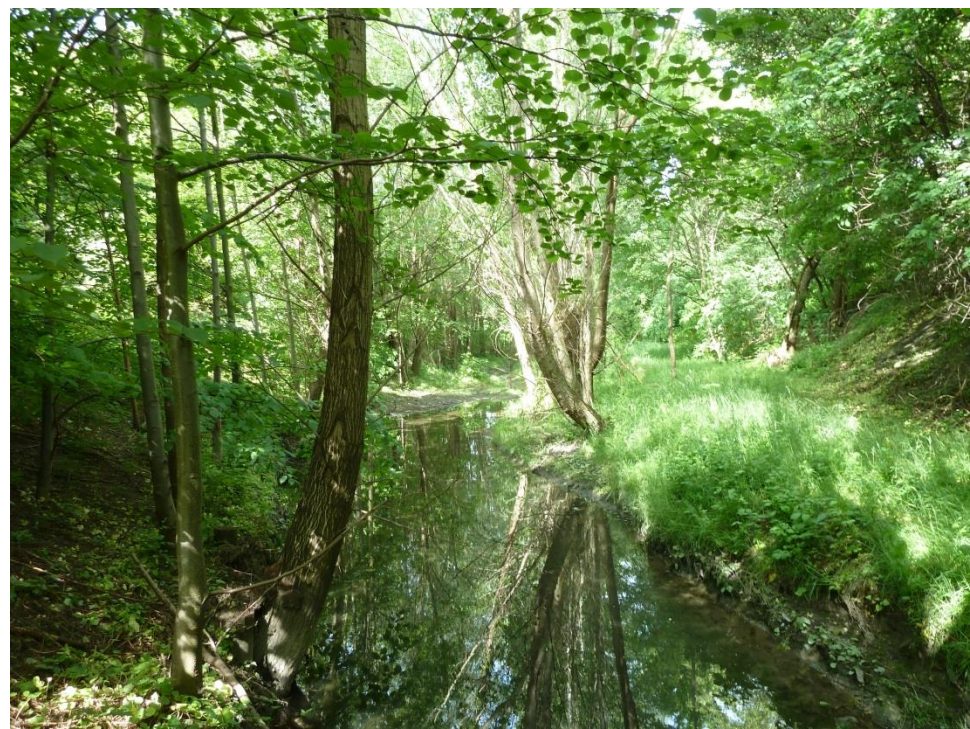
2013







2013





## AREA 1



(Source: [www.bing.com](http://www.bing.com))



## AREA 2

2011



(Source: [www.bing.com](http://www.bing.com))

2012



(Source: [www.wien.gv.at](http://www.wien.gv.at))



## AREA 2



2012



## AREA 2



2012



## AREA 2



FASCINE WALL

LIVING BUSH  
MATRESS

TREE SPUR GROYPE

DORMANT CUTTINGS

FASCINE WALL

ROOT STOCK GROYPE

2012





ROOT STOCK



2012



FASCINE WALL





LIVING BRUSH MATRESS



TREE SPUR GROYPE



FASCINE

2012



## AREA 2



2013 – after 1 year



## AREA 2

2014 - after 2 years





# METHOD MONITORING



**vegetation and structures**



**water temperature**

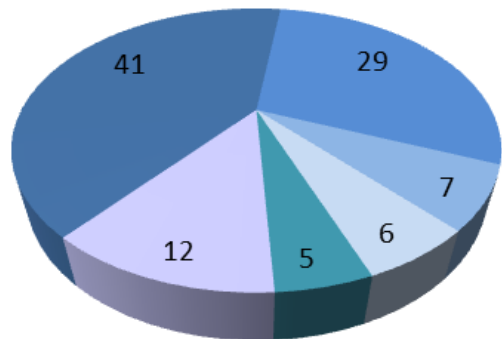
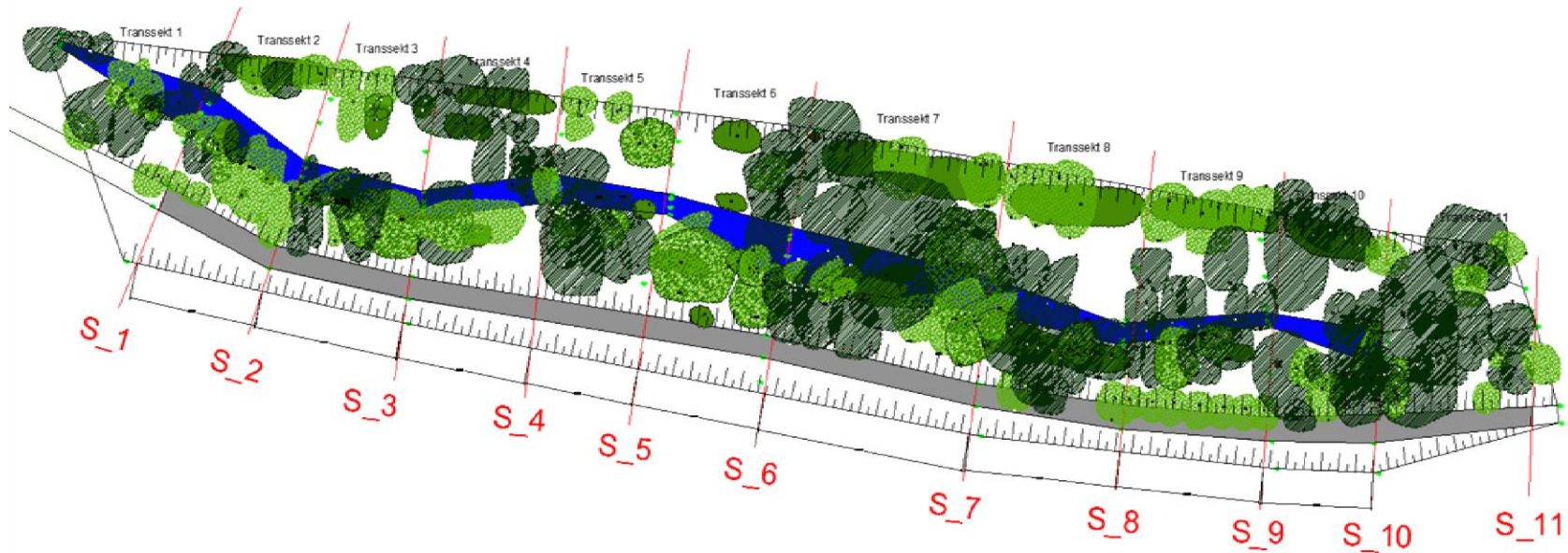


**cover**



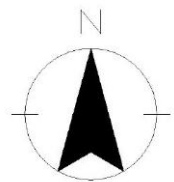
## RESULTS

### AREA 1



- Salix alba
- Alnus glutinosa
- Robinia pseudoacacia
- Populus nigra
- Acer campestre
- Other

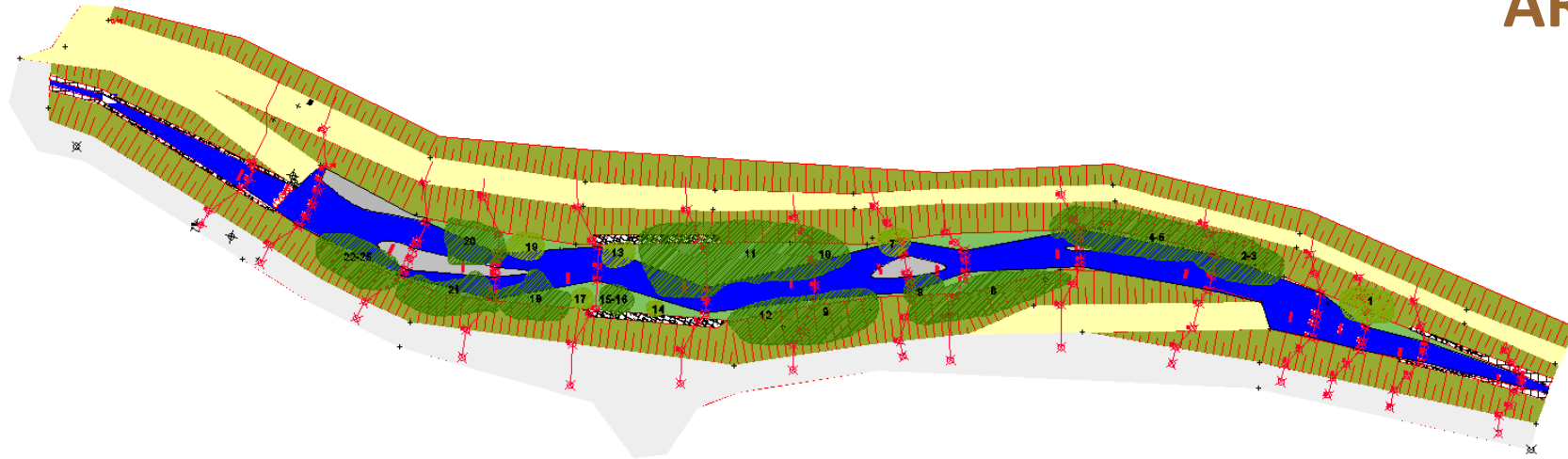
- tree layer 1
- tree layer 2
- shrub layer





## RESULTS

### AREA 2



#### Willow species:

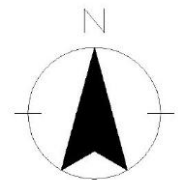
*S.purpurea*,  
*S.alba*  
*S.Viminalis*  
*S. cinerea*  
*S.daphnoides*  
*S.fragilis x alba*  
*S.fragilis x S.cinerea*  
*S.viminalis-Hybrid*



willows



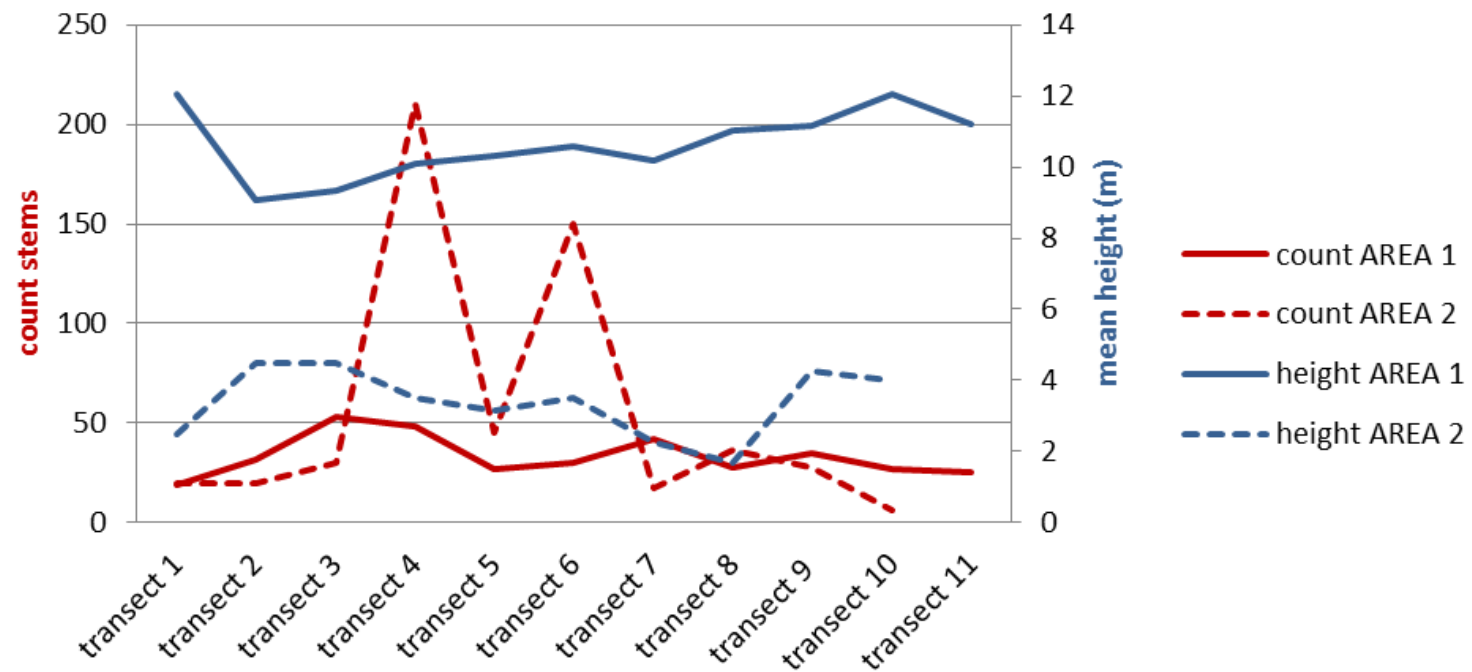
reeds





## RESULTS

# COUNT STEMS/HEIGHTS

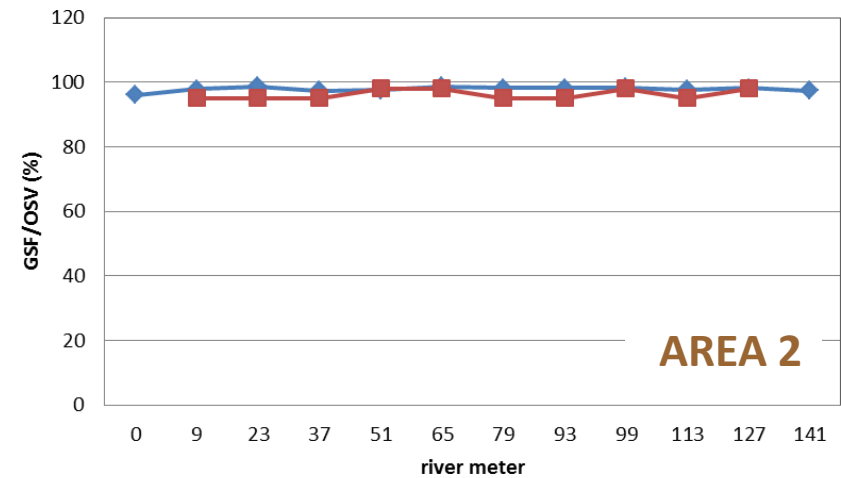
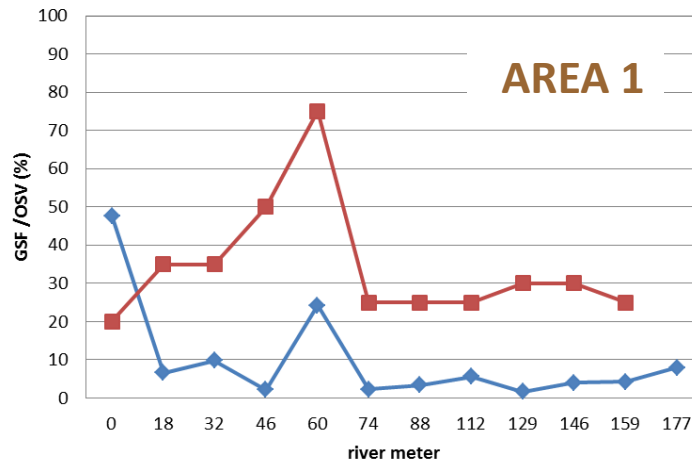




## RESULTS

# Global Site Factor /Open Sky View

◆ Global Site Factor  
■ Open Sky View



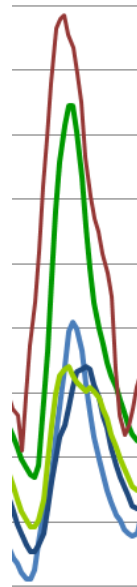


## RESULTS

	AREA 1	AREA 2
Ø HEIGHT (m)	10	3-4
Ø CROWN DIAMETER (m)	4	
Ø BHD cm	16	2,8
COUNT SHOOTS/STEMS	366	1235
COUNT SPECIES	19	2
SHOOTS/STEMS per METER	2	6,5
Ø GSF (%)	10	98



# WATER TEMPERATURE



28.7.2013

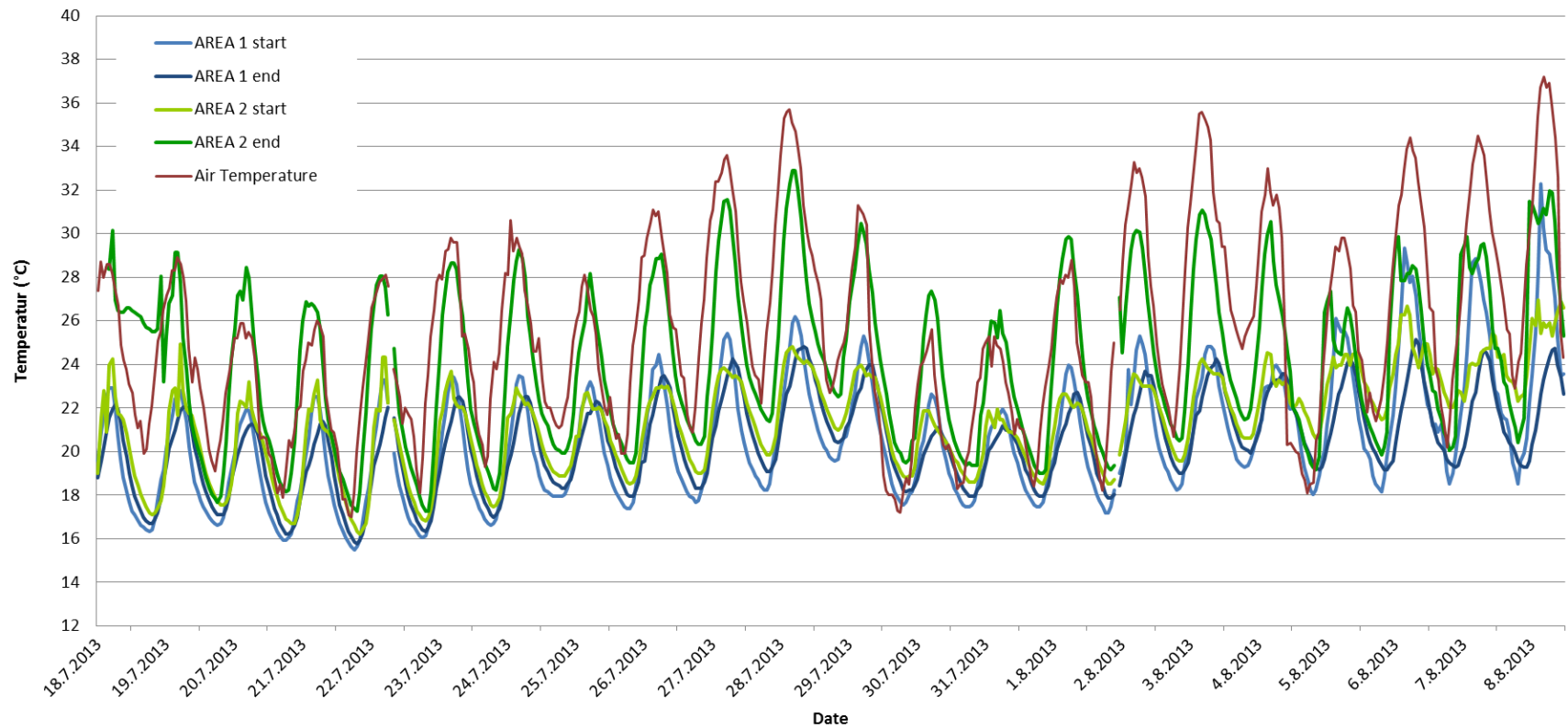
AT	35,7
A1S	26,2
A1E	24,8
A2S	24,8
A2E	32,9

°C



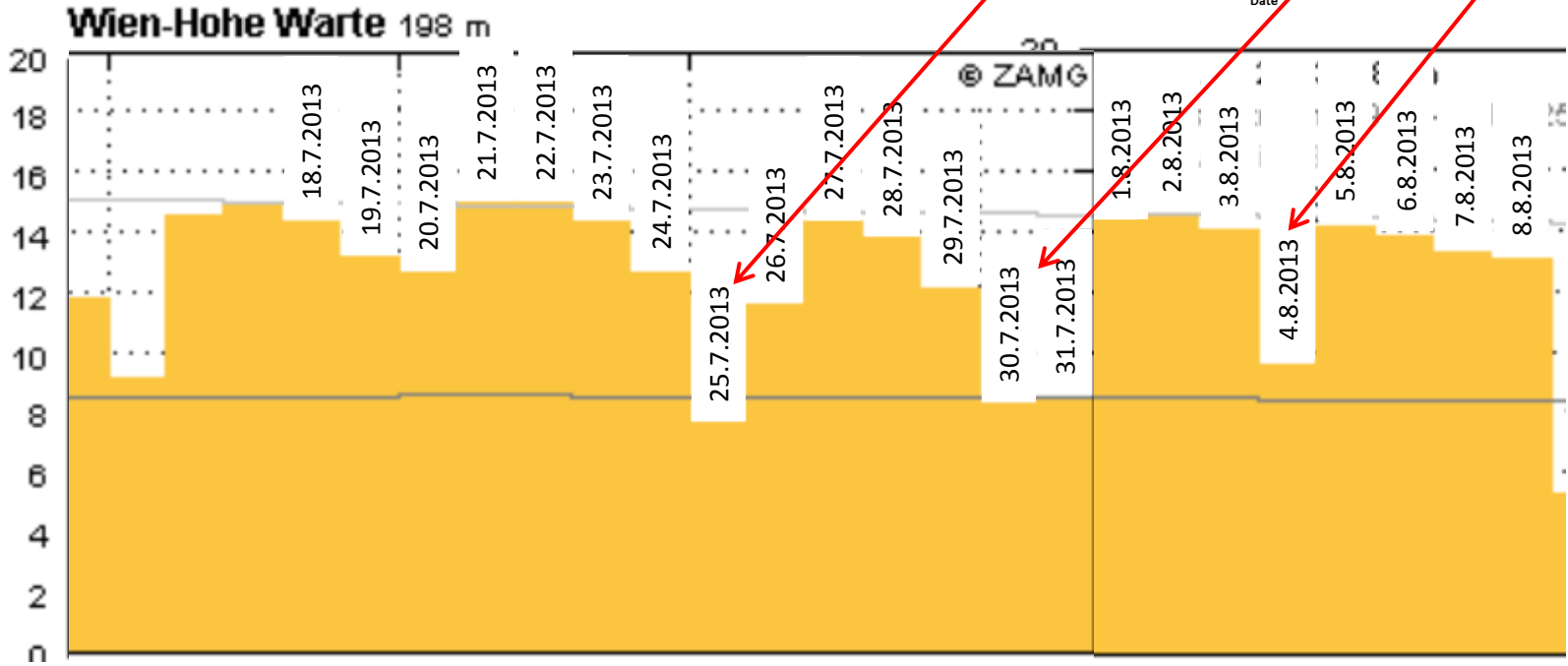
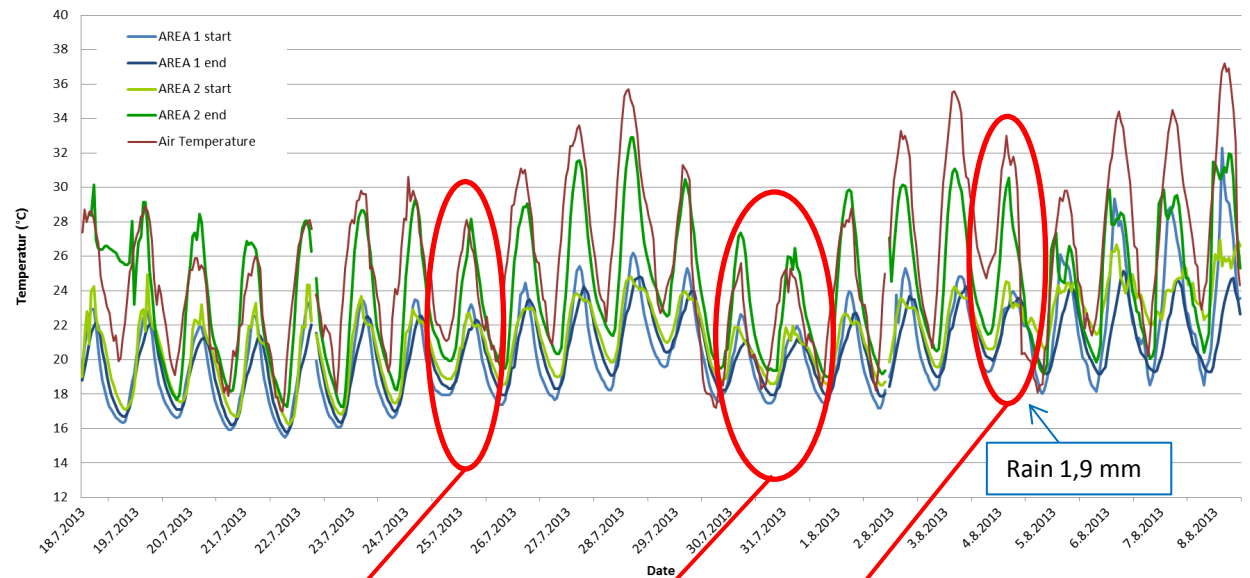


# WATER TEMPERATURE





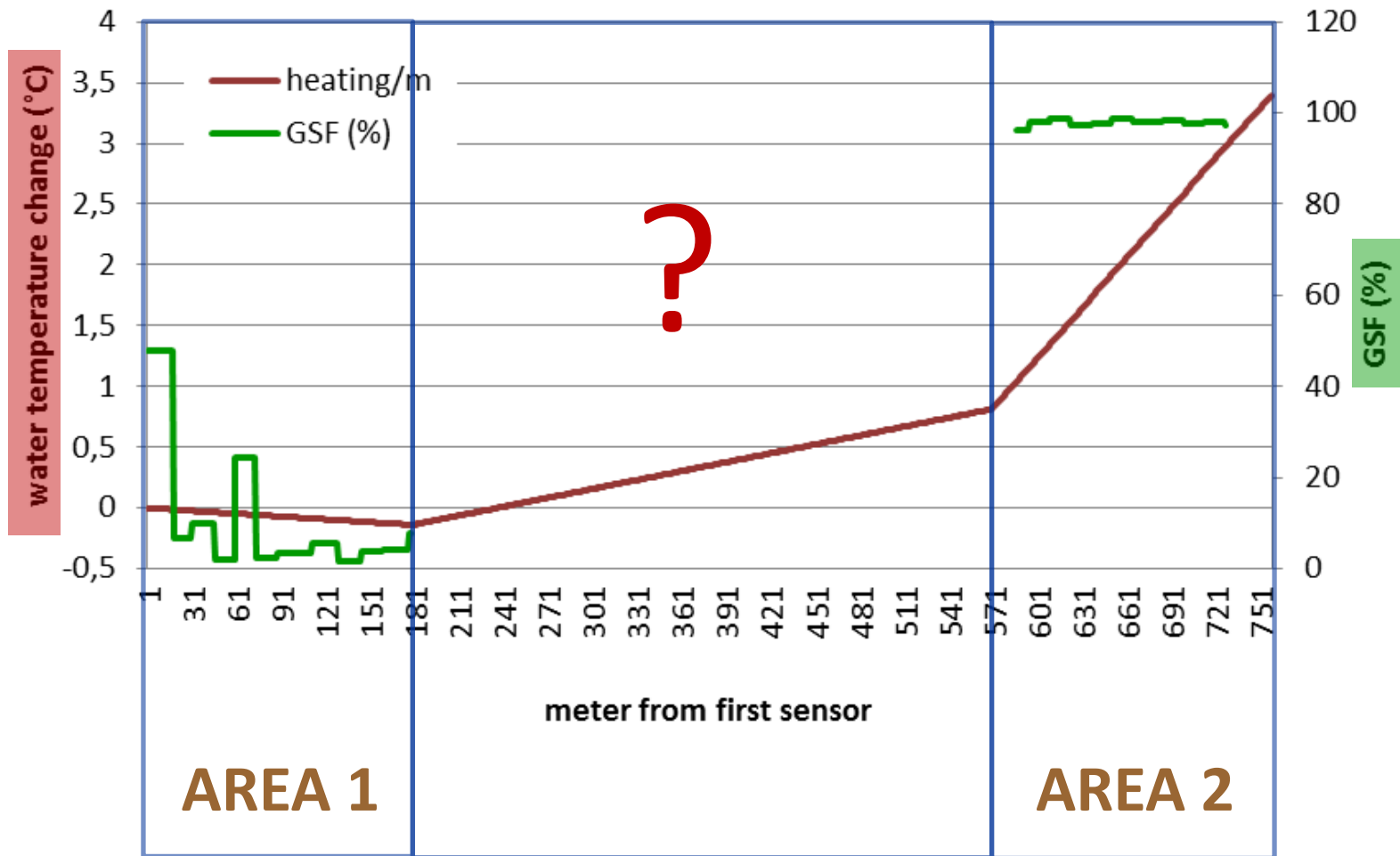
# WATER TEMPERATURE



2013



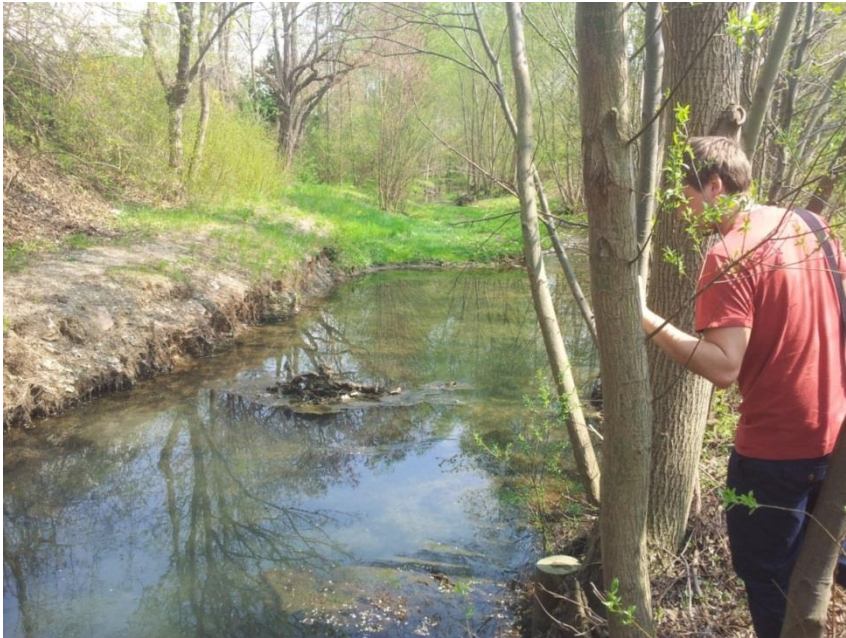
# WATER TEMPERATURE



(18.7.2013-8.8.2013)



## RESULTS



Shaded area 1 – no/few algae



Unshaded area 2 – algae



# Thank you for your attention!

