

Introduction to the project

- Preparing handouts and worksheets (October and November 2011.)
– We have prepared handouts and worksheets for teachers and students and divided them to all schools involved in the project (PINE FORESTS DAMAGE, TREE-RING ACTIVITY)
- Regional meeting GLOBE teachers, Labin, November 2011.
– attended by 15 GLOBE teachers, from primary and secondary schools



Srednja škola
Mate Blažine
Labin



The Tree Ring Project

Pisek, September 19. – 22. 2012.



Collaboration plan : Vest Telemark vgs - Dalen - SŠ Mate Blažine - Labin

Which class?	Norway: 1. st class, Croatia: 2. nd class
Same level of class each year?	Yes
When to start?	Project activities First Period: oct '11 get acquainted with project, problem approach and the equipment. (Connecting and educating students immediately.) Second Period: oct '11-march '12 time of getting to know each other- country to country, group to group, student to student (digital cross cultural exchange and start of scientific exchange on a general basis) Third period: Field work, Croatia: Research March 2012 Norway: Research April 2012
How to communicate?	Internet, E-mail, Skype - web conference, Facebook
Subjects involved	Natural science, geography, English

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Small groups work together?	Yes
Research questions?	Pine wood in Croatia and Norway - yesterday/today/in future
Student exchange	Norway-Croatia 2012: September 22 students Croatia-Norway 2013: April 22 students
Teacher visit	Norway-Croatia 2012: April, 3 teachers Croatia-Norway 2012: April, 3 teachers

Contacts between students

- -e-mail contact among students from our school and school Vest-Telemark vgs, Norway, during December 2011.

TREE RING STUDENT PARTNERS

No.	Name and e-mail address	Name and telephone number	E-mail address
1.	ANJA VUKIĆ	ANJA VUKIĆ	anjavukic@gmail.com
2.	IVANA BODIROVIĆ	IVANA BODIROVIĆ	ivana.bodirovic@gmail.com
3.	ANJA VUKIĆ	ANJA VUKIĆ	anjavukic@gmail.com

Educational workshops for students

- during January 2012.
- We conducted educational workshops for students of our school involved in the project (27 students)



Fieldwork – part I.

Determination of coordinates and characteristics of locations

LABIN RABAC



LOCATION	LATITUDE	LONGITUDE	ELEVATION	AREA (m²)	SPECIES	MUCH
1. PINETA	45.0873N	14.1254E	274 m	29912	Pinus nigra	1121
2. STARCI	45.0930N	14.1266E	197 m	1098	Pinus nigra	1121
3. MUP	45.0953N	14.1212E	225 m	3132	Pinus nigra	1121
4. VODOVOD	45.0888N	14.1134E	229 m	2000	Pinus nigra	1121
5. LANTERNA	45.0752N	14.1600E	32 m	7355	Pinus halepensis	1121
6. GIRANDELLA	45.0764N	14.1702E	37 m	7646	Pinus halepensis	1121

Determination of damage and infection of pines

Comparison of results from 2003. and 2011.

LOCATION	1. Pineta		2. Starci		3. MUP		4. Vodovod		5. Lanterna		6. Girandella		Lipovo	
	2003	2011	2003	2011	2003	2011	2003	2011	2003	2011	2003	2011	2003	2011
DEGREE OF DAMAGE	14.2	0	0	11.8	8.8	0	0	6.1	0	10.9	6.1	6.9	6.9	6.9
INFECTION	28.4	14.3	1.7	0	38.3	35.3	0	0	34.7	8.1	13.1	8.9	26.9	18.4
PI	10.3	13.9	21.9	0	25.9	25.9	16.1	22.3	33.8	63.8	62.1	30.9	30.9	30.9
F	14.3	42.6	10.1	69.8	17.1	23.6	79.5	22.8	27.3	31.6	30.9	31.6	34.9	34.9
PI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PINE MOTH	8.1	0	0	27.3	23.8	18.2	0	0	0	27.4	0	56.3	18.2	18.2

THE DEGREE OF DAMAGE, THE NUMBER OF TREES INFECTED WITH PINE MOTH 2003. (TOTAL: 448 trees)-2011. (TOTAL: 388 trees)

Unfortunately, it was evident that the reduced number of healthy trees, and increased 2, 3 and 4 degree of damage and contamination of pine moth.

Teachers visiting

- We hosted 15th Croatian National Meeting of GLOBE schools from 13-15th May 2012.
- At this event leaders of partner schools from Norway visited us.



Analysis of Soil

LOCATION	1. Pineta		2. Starci		3. MUP		4. Vodovod		5. Lanterna		6. Girandella	
	2003	2011	2003	2011	2003	2011	2003	2011	2003	2011	2003	2011
Distribution	67.8	67.8	62.3	62.0	67.9	67.8	86.5	69.9	61.8	61.5	60.0	60.3
Clay %	27.8	27.4	36.5	35.7	27.7	27.6	26.6	24.8	34.0	34.1	30.6	30.1
Sand %	1.4	1.5	2.2	2.3	4.4	4.6	5.5	5.5	2.3	2.3	4.5	4.8
Soil Texture	clay	clay	clay	clay	clay	clay	clay	clay	clay	clay	clay	clay
Permeability	46	140	62	64	50	50	15	15	44	45	44	46
Conductivity	1	1	1	1	1	1	1	1	1	1	1	1
Humus	1	1	1	1	1	1	1	1	1	1	1	1
pH	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
PO4	11.4	11.4	3.66	3.66	11.4	11.4	2.27	2.27	1.11	1.11	2.27	2.27
TP	3.25	3.25	1.63	1.63	3.25	3.25	1.63	1.63	1.63	1.63	3.25	3.25
K	0	0	0	0	0	0	0	0	0	0	0	0
Ca	0	0	0	0	0	0	0	0	0	0	0	0
Mg	0	0	0	0	0	0	0	0	0	0	0	0
Na	0	0	0	0	0	0	0	0	0	0	0	0
Fe	0	0	0	0	0	0	0	0	0	0	0	0
Zn	0	0	0	0	0	0	0	0	0	0	0	0
Mn	0	0	0	0	0	0	0	0	0	0	0	0

- At all sites the soil is mostly clay, brown, low permeability and low acid to neutral, so suited to the type of sub-Mediterranean soil.
- Nutrient loading is relatively low and the soils are infertile.
- Contaminants in the soil are not present or are in small value.

Analysis of pine needles

Comparison of results from 2003. and 2011.

LOCATION	1. Pineta		2. Starci		3. MUP		4. Vodovod		5. Lanterna		6. Girandella	
	2003	2011	2003	2011	2003	2011	2003	2011	2003	2011	2003	2011
pH	9.2	9.0	9.0	9.0	9.7	9.9	9.7	9.9	9.7	9.9	9.7	9.9
NO3	0	0	0	0	0	0	0	0	0	0	0	0
SO4	0	0	0	0	0	0	0	0	0	0	0	0
Cu	0	0	0	0	0	0	0	0	0	0	0	0
Zn	0	0	0	0	0	0	0	0	0	0	0	0
Mn	0	0	0	0	0	0	0	0	0	0	0	0
Fe	0	0	0	0	0	0	0	0	0	0	0	0
Mg	0	0	0	0	0	0	0	0	0	0	0	0
Ca	0	0	0	0	0	0	0	0	0	0	0	0
Si	0	0	0	0	0	0	0	0	0	0	0	0

The aqueous extract of pine needles have not been proven harmful substances that would indicate contamination of the soil or air at selected locations, as it was in 2003.

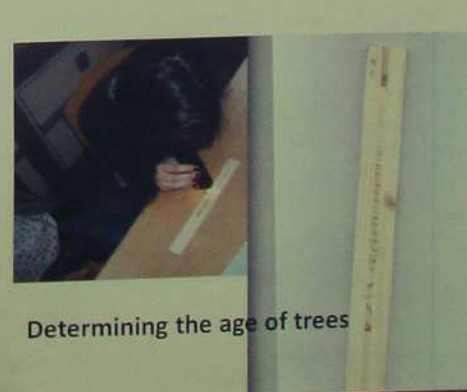


Student exchange

- I sincerely look forward to the upcoming meeting of our students, because next week we expect 21 students and their teachers who will be our guests from 24-28th September in Labin.
- According to the Collaboration plan, next year in April the same number of our students and teachers will visit our partner school in Norway.

Work in classroom

- during April, 2012.
- Sample preparation and analysis
- determining the age of trees



Determining the age of trees

The age of trees

LOCATION	1. Pineta	2. Starci	3. MUP	4. Vodovod	5. Lanterna	6. Girandella
AGE	115,3	53,3	83,0	44,3	43,0	42,0

- Age of forests ranges from about 40 years in locations Lanterna Rabac Girandella to oldest trees about 115 years, which is on the site of Pineta in old Labin.
- The data corresponds with the literature on planting forests in Rabac, tourist settlement in seventies of the last century, while the Pineta below the old town of Labin was planted 1894.
- Forests on the remaining sites are planted by the development of new part of Labin, so their age is corresponding with data.

